MPERS

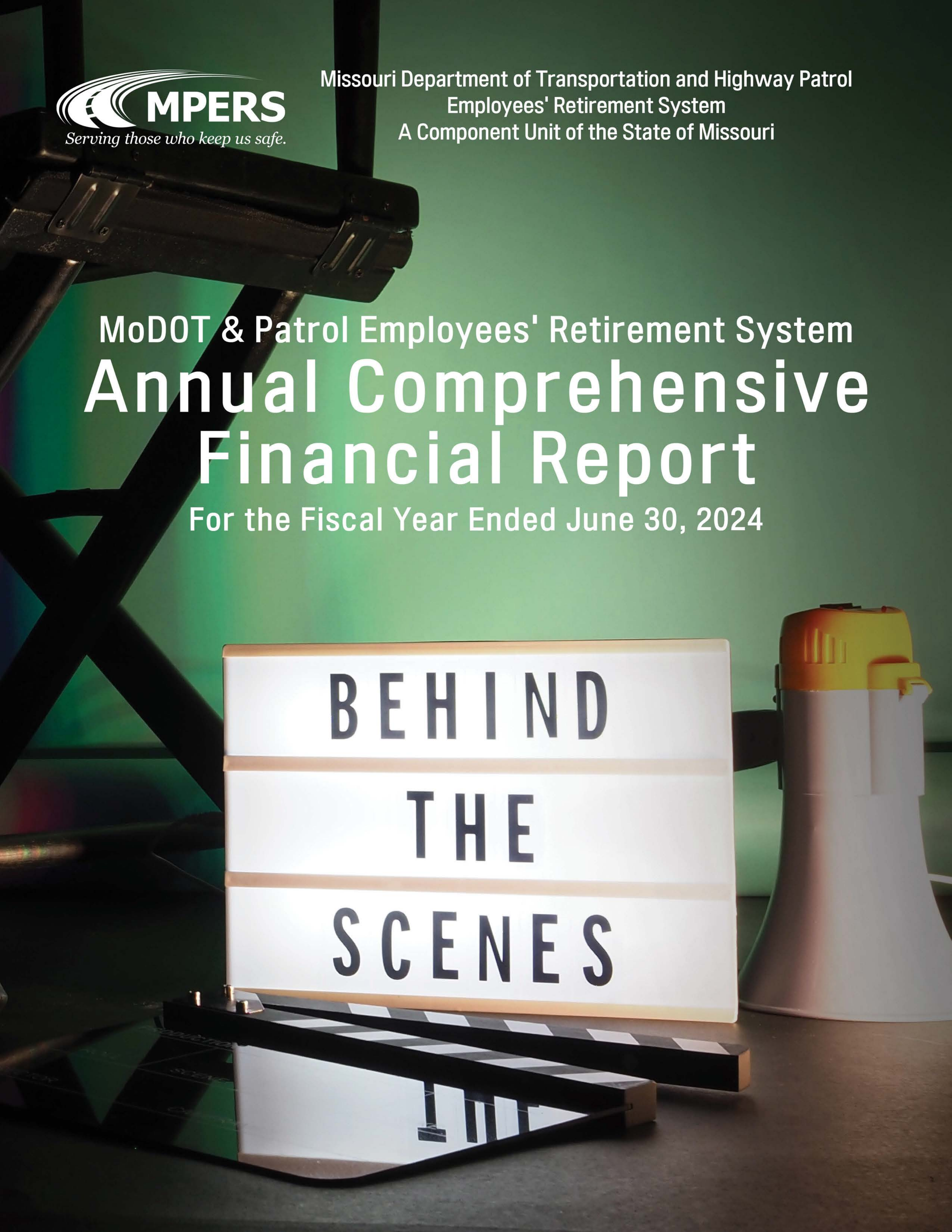
Serving those who keep us safe.

Missouri Department of Transportation and Highway Patrol
Employees' Retirement System
A Component Unit of the State of Missouri

MoDOT & Patrol Employees' Retirement System

Annual Comprehensive Financial Report

For the Fiscal Year Ended June 30, 2024



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MoDOT & Patrol Employees' Retirement System
A Component Unit of the State of Missouri

Annual Comprehensive Financial Report

For The Fiscal Year Ended June 30, 2024

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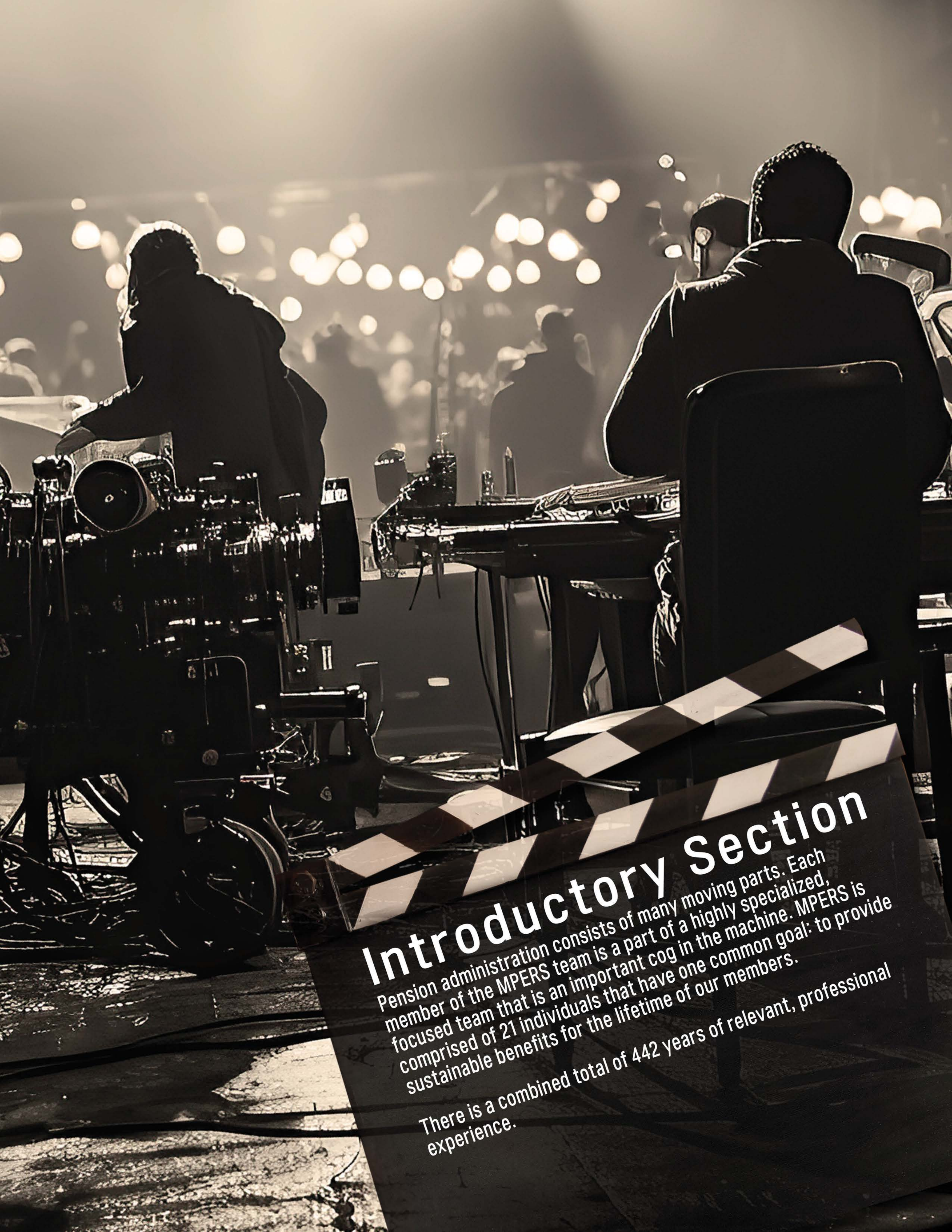


Introductory Section

Pension administration consists of many moving parts. Each member of the MPERS team is a part of a highly specialized, focused team that is an important cog in the machine. MPERS is comprised of 21 individuals that have one common goal: to provide sustainable benefits for the lifetime of our members.

There is a combined total of 442 years of relevant, professional experience.

MoDOT & Patrol Employees' Retirement System

November 5, 2024

To the Board of Trustees and System Members:

We are pleased to provide this *Annual Comprehensive Financial Report* (*Annual Report*) of the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (MPERS) for the fiscal year ending June 30, 2024. This report is intended to provide MPERS' stakeholders with a thorough review of the System's operations for the past fiscal year. The material presented in this report has been prepared in a manner intended to be valuable and informative to MPERS' members, the management of the Missouri Department of Transportation (MoDOT) and the Missouri State Highway Patrol (MSHP), and the elected officials of the state of Missouri.

MPERS is a defined benefit pension plan designed to be an effective employee recruitment and retention tool for covered employers. It provides lifetime retirement benefits to eligible MoDOT and MSHP employees. The monthly retirement and survivor benefits MPERS provides are a valuable source of retirement income for the members we serve. These benefits, when combined with social security and personal savings, provide the foundation for our members to leave the workforce and enjoy their retirement years with the dignity they deserve.

The average monthly benefit of a new MPERS retiree in Fiscal Year 2024 was $2,225, which equates to $26,700 per year. Given the increasing cost of living, this amount alone will not provide a comfortable lifestyle for the retiree. However, this monthly benefit and those provided by other traditional pension plans have a significant impact that reaches beyond the retirees served. Over the past 10 years alone, MPERS has paid over $2.65 billion in benefit payments to its members. Nearly 95% of these retirees and beneficiaries reside in Missouri, reinvesting their retirement dollars in housing, goods, and services. This reinvestment improves the local economy, which in turn, helps to fuel the state's overall economy. The result is that defined benefit pensions have a long-term positive impact on our economy and the lives of our members.

Report Contents and Structure

This *Annual Report* complies with the statutory reporting requirements stipulated in sections 104.190, 104.1006, and 105.661 of the Missouri Revised Statutes, as amended.

To the best of our knowledge, the information presented is accurate in all material respects and reported in a manner designed to represent the fund's financial position fairly. Some amounts included in the financial statements and elsewhere may be based on estimates and judgments. These estimates and judgments are products of best business practices. The accounting policies followed in preparing the basic financial statements conform with U.S. generally accepted accounting principles. Financial information presented throughout the *Annual Report* is consistent with information displayed in the basic financial statements.

The MPERS Board of Trustees (Board) is ultimately responsible for the *Annual Report* and basic financial statements. MPERS' executive director and staff prepare the information contained in these documents to assist the Board in fulfilling its statutory duty.

Systems of internal controls and supporting procedures are maintained to provide assurances that transactions are authorized, assets are safeguarded, and proper records are kept. These controls include standards in hiring and training employees, the establishing an organizational structure, and communicating policies and guidelines throughout the organization. Inherent limitations exist in all control systems. No evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud have been detected. The objective of internal controls is to provide reasonable assurance that the financial statements are free of any material misstatements, recognizing that a control's cost should not exceed its benefit.

In accordance with section 104.190 RSMo., Williams-Keepers, LLC, an independent auditing firm, has audited the financial statements included in this report and has issued an unmodified opinion (i.e., no audit concerns relating to MPERS' financial statements). The opinion letter of Williams-Keepers, LLC is presented in the "Financial Section" of this *Annual Report*. "Management's Discussion and Analysis" immediately follows the "Independent Auditors' Report" and provides an introduction, overview, and analysis of the basic financial statements.

Background Information
MPERS was established by Senate Bill 66 in the 68th General Assembly. In accordance with this legislation, employees of MoDOT and MSHP became members of the retirement system on September 1, 1955. Effective October 1, 1955, the System accepted 109 retirements. Employees of MPERS became members of the System after the passage of Senate Bill 371 in 2001.

The plan provisions have changed many times over the years. The System offers not only enhanced retirement and disability benefits but also benefits for survivors of active and retired members, benefits for vested former members, and death benefits.

MPERS' 11-member Board oversees the System. The trustees serve as fiduciaries and are responsible for selecting and retaining competent management. The trustees and management jointly establish sound policies and objectives, monitor operations for compliance, and oversee performance.

MPERS is considered a component unit of the state of Missouri for financial reporting purposes, and the financial statements in this report are also included in the *State of Missouri's Annual Comprehensive Financial Report.*

Fiscal Year 2024 Highlights
Two key strategic planning initiatives stand out for the year. First was the update to the funding policy, where not only was the aggressiveness of the "temporary policy" adopted as the permanent policy but also where divisional details for uniformed and non-uniformed employee groups are now clearly denoted. The employer contribution rates for the last 15 years have been very high, but they have supported remarkable progress with MPERS' overall funding status. The higher funded status has supported significant improvement, and employer contribution rates for non-uniformed employees have decreased for the first time in over a decade. The second key planning initiative was regarding incentive compensation for investment staff. The original incentive compensation plan was necessary and vital to past success but had become an inhibitor as we looked toward the future. With the newly updated policy, MPERS is in a competitive position with its peers, and the stage is set for future successful recruitment and retention efforts. This was a critical decision that will benefit the System for years to come. Not only did it remove the flaws of the old policy, but it continues to apply an incentive for above-average results under higher hurdle rates as compared to the old policy. Investment performance has been a critical contributor to the System's funding progress. Improving the ability to recruit and retain the best talent will be essential to continuing the success of the past.

Finally, MPERS' benefits team's customer service is worth an honorable mention. Continued positive customer feedback is often taken for granted. Customer service is a key objective for everyone in this office, if not the key objective. The focus-on-the-member mentality shows in virtually everything we do, and our members appreciate it. As in years past, our customer service survey results show that staff is performing very well. These results routinely reinforce the positive service outcomes members typically experience. The MPERS team deserves some appreciation for making those outcomes a reality.

In closing, I will echo last year's comments commending the MPERS Board of Trustees for making tough and thoughtful decisions. Establishing sound governance policies has been key to the evolution of the organization and the staff's ability to excel. There is more to do, but sound policy and diligent oversight have set the stage for continued growth and progress well into the future.

Actuarial Funding Status
MPERS' funding objective is to meet future benefit obligations of retirees and beneficiaries through investment earnings and payroll contributions that remain approximately level from generation to generation. Historical information relating to this objective is presented in the "Schedule of Funding Progress" in this report's "Actuarial Section." During the fiscal year ending June 30, 2024, MPERS' funded status, which covers 18,824 participants, increased by 1.63% to 70.6%.

Each year, an independent actuarial firm conducts a valuation study to determine the actuarial soundness of the Plan based on its long-term obligations and the sufficiency of current contribution levels to fund the liabilities over a reasonable timeframe. In MPERS' most recent valuation, dated June 30, 2024, the actuary concluded that the System continues to be financed in accordance with actuarial standards using the level percent of payroll financing method. The actuary's conclusion is based upon the fact employers contribute to the System according to actuarially determined rates and presumes the continuation of payment of actuarially determined contributions. Additional information regarding the System's financial condition can be found in the "Actuarial Section" of this report.

To address the System's underfunding situation, the Board has modified the actuarial funding policies over the past 17 years. In June 2024, the Board amended the funding policy to continue propelling forward progress for both funding levels and contribution rates. As of June 30, 2024, the funding policy has a 16-year closed amortization period for unfunded liabilities.

On September 24, 2014, the Board adopted a Contribution Rate Stabilization Reserve Fund to reinforce further the aggressive funding policies noted in the policy above. The reserve fund is funded by maintaining employer contribution rates at present levels and applying investment gains to the reserve fund rather than decreasing employer contribution rates. When actuarial losses are experienced, the reserve fund is used first rather than increasing employer contribution rates. The reserve fund provides a smoothing of the overall experience, further decreasing the potential volatility of contributions for covered employers.

Investment Activities

State statutes and other applicable laws require the System's fiduciaries to make investments using the same care, skill, and diligence that prudent investors acting in a similar capacity would use. In fulfilling this obligation, the Board has established an investment policy to clearly define the roles and responsibilities of the Board, staff, and consultants and to ensure that System assets are invested in a diversified portfolio following prudent investment standards. The Board determines the Plan's broad asset allocation policies and return objectives. To implement and execute these policies, the Board has retained investment staff, consultants, a master custodian, and other advisors.

As of June 30, 2024, MPERS' investment portfolio had a total fair value of $3.66 billion, representing a return of 13.3% for the fiscal year. Relative to MPERS' peer group, the InvestorForce Public Fund Universe, the 13.3% return for Fiscal Year 2024 ranked MPERS in the 20th percentile. The trailing three- and five-year performance of 8.6% and 10.8%, respectively, ranks MPERS in the top 1% of the peer group for both periods. The trailing 10- and 20-year performance of 8.9% and 8.1%, respectively, also ranks MPERS in the top 1% and 2% of the peer group for both periods.

Awards

The GFOA (Government Finance Officers Association) awarded a Certificate of Achievement for Excellence in Financial Reporting to MPERS for its Fiscal Year 2023 *Annual Report*. MPERS has achieved this prestigious award every year since Fiscal Year 2005. The Certificate of Achievement is the highest form of recognition for excellence in state and local government financial reporting. To be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized *Annual Report*. This report must satisfy generally accepted accounting principles and applicable legal and GFOA reporting requirements.

A Certificate of Achievement is valid for one year. We believe that our current *Annual Report* continues to meet the program's requirements, and therefore, we are submitting this report to GFOA to determine its eligibility for another certificate.

MPERS also received the Public Pension Coordinating Council's (PPCC) Public Pension Standards Award in recognition of meeting professional standards for plan design and administration. The Council has presented this award to MPERS each year since 2004. The PPCC is a confederation of the National Association of State Retirement Administrators, the National Conference on Public Employee Retirement Systems, and the National Council on Teacher Retirement.

MPERS' staff and Board are pleased to receive these prestigious awards for financial and professional standards of excellence and may be viewed after this transmittal letter.

Acknowledgments and Distribution

This report, a product of the combined efforts of MPERS' staff and advisors, provides comprehensive and reliable information about the System, demonstrates compliance with legal provisions, and allows for the evaluation of responsible stewardship of the System's funds.

This report is provided to the governor, the state auditor, and the Joint Committee on Public Employee Retirement. It is also distributed electronically to all MoDOT divisions, district offices, and MSHP general and troop headquarters. These offices form the link between MPERS and its members, and their cooperation contributes significantly to the success of MPERS. We hope all readers of this report find it informative and valuable. An electronic version of this report is available on the MPERS website at www.mpers.org/annual-reports.

We express our gratitude to the members of the Board, the staff, the consultants, and the many people who have worked so diligently to ensure the continued successful operation of MPERS. The steady, monthly benefit payments offered by defined benefit plans, like MPERS, provide peace of mind and security for retirees and their families. For over 65 years, MPERS has been committed to providing a foundation for financial security to plan participants through delivering quality benefits, exceptional member service, and professional plan administration.

Respectfully submitted,

Scott Simon	Sue W. Cox
Executive Director	Board Chair

Government Finance Officers Association

Certificate of Achievement for Excellence in Financial Reporting

Presented to

Missouri Department of Transportation & Highway Patrol Employees' Retirement System

For its Annual Comprehensive Financial Report For the Fiscal Year Ended

June 30, 2023

Christopher P. Morrill

Executive Director/CEO

Public Pension Coordinating Council

Public Pension Standards Award
For Funding and Administration
2023

Presented to

MoDOT & Patrol Employees' Retirement System

In recognition of meeting professional standards for
plan funding and administration as
set forth in the Public Pension Standards.

Presented by the Public Pension Coordinating Council, a confederation of

National Association of State Retirement Administrators (NASRA)
National Conference on Public Employee Retirement Systems (NCPERS)
National Council on Teacher Retirement (NCTR)

Alan H. Winkle
Program Administrator

MPERS is governed by an eleven-member Board of Trustees, as set out in Section 104.160 of the Missouri Revised Statues (RSMo.). Board members as of June 30, 2024:

Sue Cox, Board Chair

MoDOT Retiree

Elected by Retired MoDOT Members

Matt Morice, Board Vice Chair

MSHP Employee

Elected by Active MSHP Members

Senator Mike Bernskoetter

State Senator

Appointed by President Pro-Tem of the Senate

W. Dustin Boatwright

Commissioner

Missouri Highways and Transportation Commission

Warren Erdman

Commissioner

Missouri Highways and Transportation Commission

Daniel Hegeman

Commissioner

Missouri Highways and Transportation Commission

Representative Barry Hovis

State Representative

Appointed by the Speaker of the House

Patrick McKenna

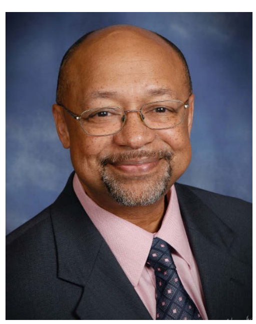
Director of MoDOT

Ex-Officio Member

Colonel Eric Olson

Superintendent of MSHP

Ex-Officio Member



William "Bill" Seibert

MSHP Retiree

Elected by Retired MSHP Members

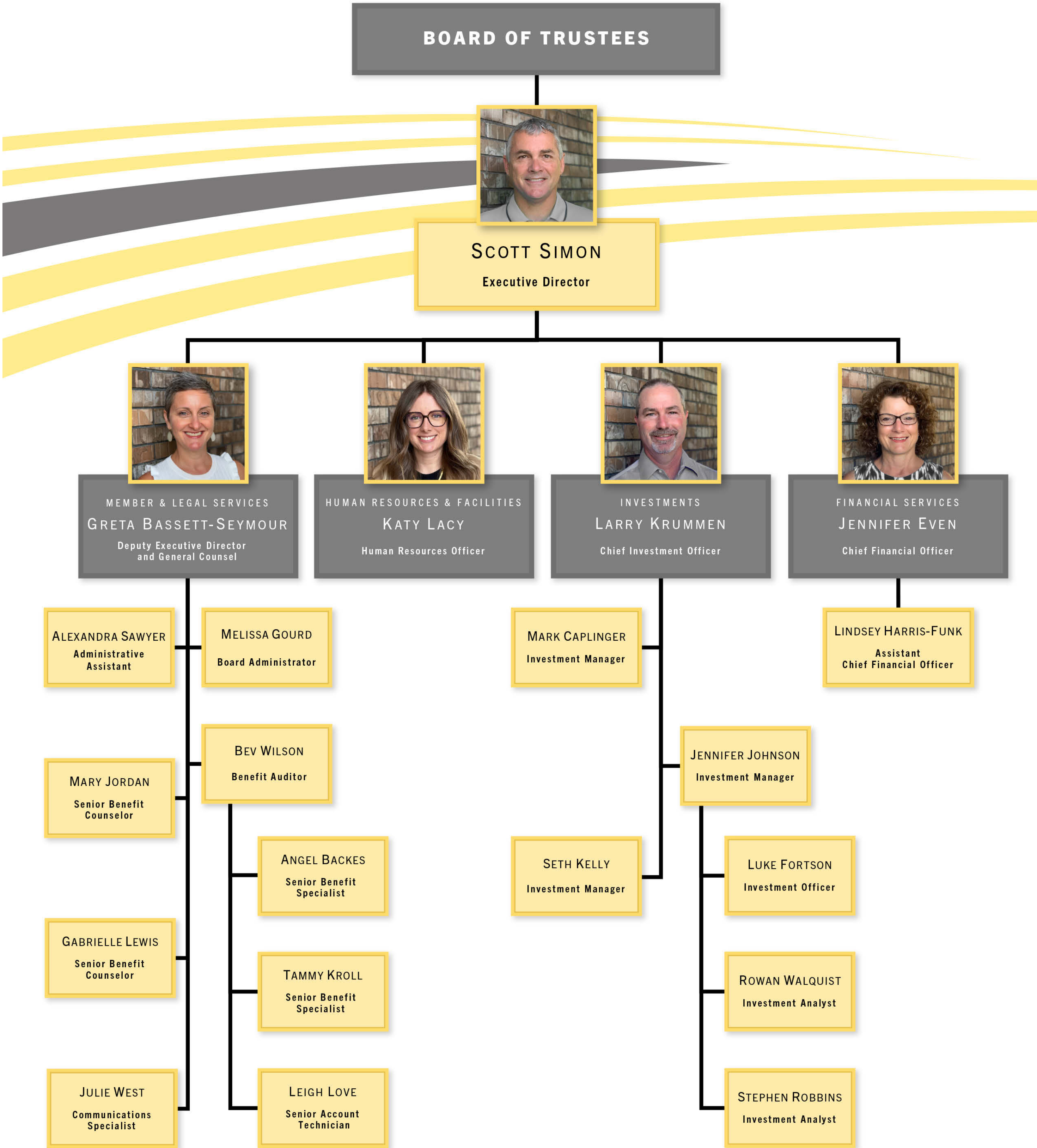
Todd Tyler

MoDOT Employee

Elected by Active MoDOT Members

MPERS
Serving those who keep us safe.

The executive director of MPERS has charge of the office and records of the System and hires employees as deemed necessary, subject to the approval of the Board of Trustees. The System employed nineteen full-time staff as of June 30, 2024.



Director's Office

The Director's Office staff provides executive oversight for the System which includes, but is not limited to, administrative support in the areas of legislation, stakeholder communications, operations, facilities management, human resources, benefits, risk management, and investments. The Director's Office is also responsible for providing the Board with results, information, and reports on the activities of the System.

Financial Services

The Financial Services section is responsible for maintaining all the financial records of MPERS. The Financial Services section interacts with the investment custodian, the auditors, the depository bank, the Missouri Department of Revenue, and the Internal Revenue Service. In addition, they assist the Investments section in tracking and predicting target cash balances, participate in annual budget development, prepare monthly budget-to-actual reports, and calculate monthly premium payments to the long-term disability insurer. The Financial Services section also processes MPERS' semi-monthly office payroll, reconciles monthly benefit payments and contributions/payrolls posted, and reconciles investment activity.

Investments

The Investments section staff works closely with the general investment consultant to manage the investment portfolio and provide consulting services to the Board and the executive director. This includes, but is not limited to, the following: (a) formulating investment policy and asset recommendations; (b) sourcing, selecting, monitoring, and evaluating external investment advisors; (c) measuring and reporting investment performance; (d) conducting market research on political, financial, and economic developments that may affect the System; and (e) serving as a liaison to the investment community.

Legal Services

The Legal Services section advises the executive director and Board on legal matters, reviews and approves investment and other contracts for MPERS, advises staff on the application of state and federal statutes affecting the administration of plan benefits, responds to requests from members and their attorneys related to plan benefits, engages in or oversees litigation affecting MPERS, and assists in developing policies, rules, and legislation impacting MPERS' operations or the administration of plan benefits.

Member Services

The Member Services section consists of two units devoted to serving member needs.

The Benefits Unit is responsible for contact with the membership regarding the benefit programs administered by MPERS, which include retirement and disability. The benefits staff is responsible for preparing and delivering the pre-retirement, mid-career, and benefit basics seminars in addition to assisting with the development of member communication material. The benefits staff is the main point of contact for members who have questions about retirement.

The Payroll Unit is responsible for establishing and maintaining all membership records including the following: (a) maintaining member data in the pension administration system; (b) verifying retirement calculations; (c) balancing payroll deductions; (d) verifying SAMII data against exception reports; and (e) entering payroll, service, and leave data into the System's database. Payroll Unit staff will also create and publish communication materials, assist with pre-retirement seminars, provide data to the actuary, and review member records for accuracy and completeness.

The following firms were retained at fiscal year-end by the Board of Trustees to serve in professional capacities or provide consultant services. Please refer to pages 55 through 58 in the Investment Section for the Schedule of Investment Expenses and Brokerage Commissions for the investment professionals.

Actuary
- Gabriel, Roeder, Smith & Company

Auditor
- Williams-Keepers, LLC

Investment General Consultant
- NEPC

Information Technology
- Levi, Ray & Shoup, Inc.
- Midwest Computech, Inc.

Legislative Consultant
- Michael G. Winter Consultants, LLC

Master Trustee/Custodian
- The Northern Trust Company

Risk Management/Insurance Consultant
- Charlesworth Benefits

Long-Term Disability Insurer
- The Standard Insurance Company

Governance Consultant
- Funston Advisory Services, LLC

Investment Managers
- ABRY Partners
- Aisling Capital
- Albourne America
- American Infrastructure MLP
- American Timberlands Company
- Anchorage Capital Group
- Apollo Aviation Group
- Ares Management
- Arrowroot Capital
- Banner Ridge Partners
- Blackstone Alternative Asset Management
- Blackstone
- Blue Road Capital
- Bridgewater Associates
- Carlyle Aviation Partners
- CarVal Investors (CVI)
- Catchmark Timber
- CBRE Investors
- CenterSquare Investment Management
- CIM Group
- Clarion Partners
- Corrum Capital
- DC Capital
- Drive Capital
- Dyal Capital Partners
- Energy & Mineral Group
- Fortress Investment Group
- Francisco Partners
- Golden Sciens Marine Investments Limited
- Grey Rock Energy Partners
- Grove Street Advisors
- GSO Capital Opportunities
- Heartwood Partners
- Kennedy Capital
- KKR
- KPS Capital Partners
- Long Ridge Equity Partners
- Longford Capital Management
- Luxor Capital Group
- M&G Investments
- Mercato Partners
- MGG Investment Group
- Millennium Management
- Miravast
- Monomoy Capital Partners
- Natural Gas Partners
- New Mountain Capital
- NewQuest Capital Partners
- Nexus Capital Management
- Northern Shipping
- Oak Street Real Estate Group
- OCP Asia Limited
- Octagon Credit Investors
- OpenGate Capital
- Orion Mine Finance Group
- Owl Rock Capital Partners
- Parametric
- Pfingsten Partners
- PIMCO
- Principal Global Investors
- Quantum Energy Partners
- Ridgewood Energy
- Riverstone Credit Partners
- Sculptor Real Estate
- Shore Capital Partners
- Shoreline Capital
- Silver Point Capital
- Stockdale Capital Partners
- Timberland Investment Resources
- Torchlight Investors
- Tristan Capital Partners
- Turnbridge Capital Partners
- Varde Asia
- Vectis

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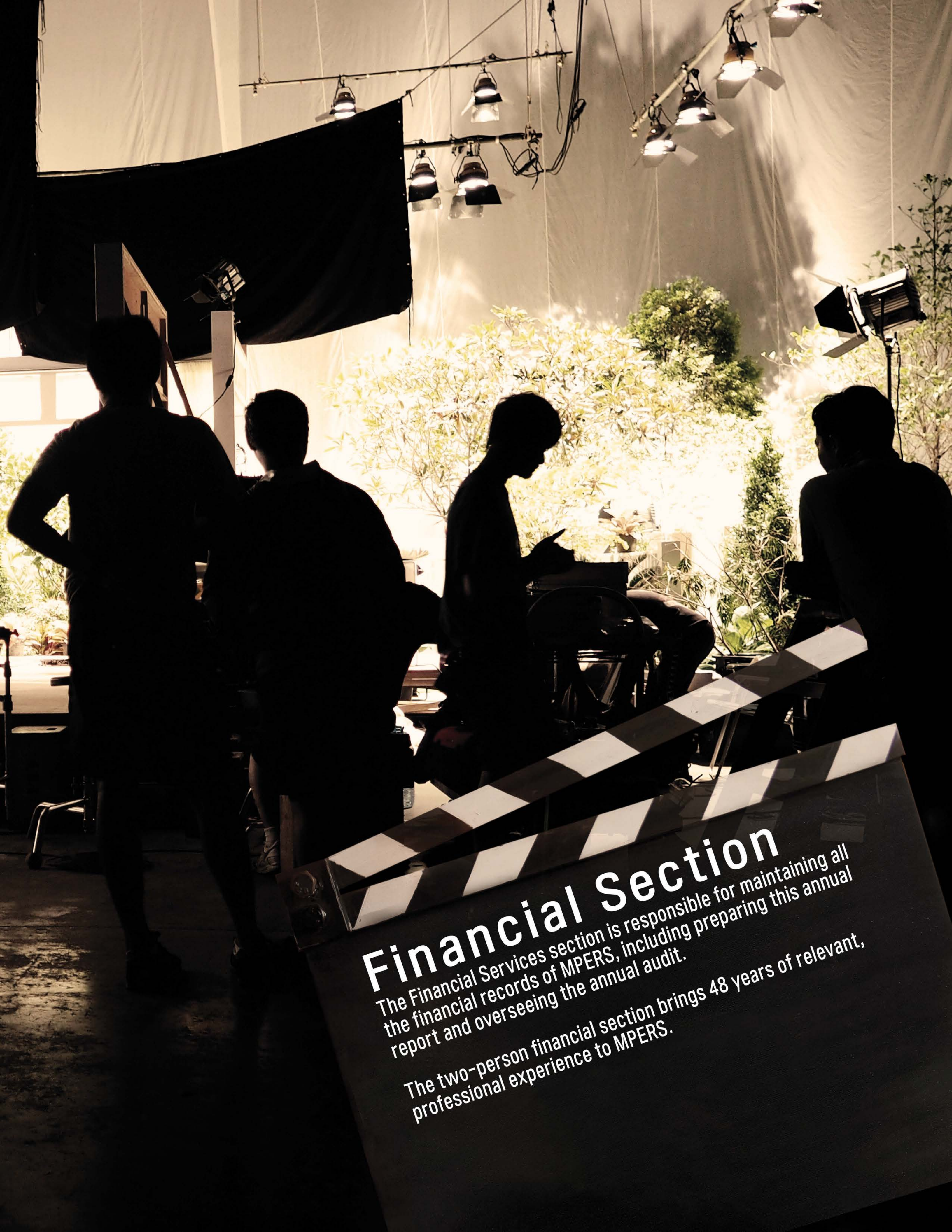

Financial Section

The Financial Services section is responsible for maintaining all the financial records of MPERS, including preparing this annual report and overseeing the annual audit.

The two-person financial section brings 48 years of relevant, professional experience to MPERS.

WILLIAMS KEEPERS LLC
CERTIFIED PUBLIC ACCOUNTANTS & CONSULTANTS

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3220 West Edgewood, Suite E, Jefferson City, MO 65109
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INDEPENDENT AUDITOR'S REPORT

The Board of Trustees
Missouri Department of Transportation and
Highway Patrol Employees' Retirement System

Opinion

We have audited the statement of fiduciary net position of the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (the System), as of June 30, 2024, and the related statement of changes in fiduciary net position for the year then ended, and the related notes to the financial statements, which collectively comprise the System's basic financial statements as listed in the table of contents.

In our opinion, the accompanying financial statements present fairly, in all material respects, the fiduciary net position of the System as of June 30, 2024, and the changes in fiduciary net position for the year then ended, in accordance with accounting principles generally accepted in the United States of America (GAAP).

Basis for Opinion

We conducted our audit in accordance with auditing standards generally accepted in the United States of America (GAAS). Our responsibilities under those standards are further described in the Auditor's Responsibilities of the Audit of the Financial Statements section of our report. We are required to be independent of the System and to meet our ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a bases for our audit opinion.

Responsibilities of Management for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with GAAP, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether these are conditions or events, considered in the aggregate, that raise substantial doubt about the System's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the System's internal control. Accordingly, no such opinion is expressed.

- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.

- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the System's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

Required Supplementary Information

GAAP requires that the management's discussion and analysis and the schedules of changes in the employers' net pension liability, employers' contributions, investment returns, changes in net OPEB liability and related ratios, MPERS' proportionate share of net OPEB liability, and related notes be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with GAAS, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Supplementary Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the System's basic financial statements. The schedule of administrative expenses, schedule of investment expenses, and the schedule of consultant and professional expenses are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied to the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with GAAS. In our opinion, the schedule of administrative expenses, the schedule of investment expenses, and the schedule of consultant and professional expenses are fairly stated, in all material respects, in relation to the basic financial statements as a whole.

Other Information

Management is responsible for the other information included in the annual comprehensive financial report. The other information comprises of the introductory, investments, actuarial, and statistical sections, but does not include the basic financial statements and our auditor's report thereon. Our opinion on the basic financial statements does not cover the other information, and we do not express an opinion or any form of assurance thereon. In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

Williams-Keepers LLC

Columbia, Missouri
November 4, 2024

The management of the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (the System, or MPERS) provides this discussion and analysis of the System's financial performance for the fiscal year ended June 30, 2024. While this discussion is intended to summarize the financial status of MPERS, readers should consider this information in conjunction with the information that is furnished in the more detailed financial statements and corresponding notes.

DESCRIPTION OF BASIC FINANCIAL STATEMENTS

As required by the Governmental Accounting Standards Board (GASB) accounting standards, this financial report consists of Management's Discussion and Analysis (this section), the basic financial statements (including notes to the basic financial statements), and other required supplementary information.

Financial Statements report information about MPERS, using accounting methods similar to those used by private-sector companies, by using the economic resources measurement focus and accrual basis of accounting. These statements provide both long-term and short-term information about the System's overall financial status. These statements follow this Management's Discussion and Analysis section:

- The *Statement of Fiduciary Net Position* includes all the System's assets and deferred outflows of resources, and liabilities and deferred inflows of resources, with the difference reported as net position.

- The *Statement of Changes in Fiduciary Net Position* accounts for all the current year's additions (income) and deductions (expenses), regardless of when cash is received or paid.

Notes to the Financial Statements are included following the financial statements. The notes to the financial statements provide additional information that is essential for a full understanding of the data provided in the financial statements.

Required Supplementary Information follows the notes and further supports the information in the financial statements.

Supplementary Information follows the required supplementary information and provides additional detailed administrative and investment expense information.

ANALYSIS OF FINANCIAL POSITION AND RESULTS OF OPERATIONS

Overall, the financial position of MPERS increased by $396.0 million, reported as the "net increase". This is primarily a result of the increase in the fair value of investments for the year ended June 30, 2024. The funded status of the plan showed an increase of 1.63%, primarily due to positive investment returns.

The following schedules present summarized comparative data from the System's financial statements for each of the fiscal years ended June 30, 2024 and 2023. Following each schedule is a brief summary providing explanation and analyses of the major reasons for changes in the condensed financial statements.

Summarized Comparative Statements of Fiduciary Net Position

	June 30, 2024	June 30, 2023	% Change 2024 / 2023
Cash and Receivables	$ 31,264,488	$ 43,820,838	-28.7
Investments	3,658,217,662	3,266,926,550	12.0
Invested Securities Lending Collateral	21,142,145	18,946,422	11.6
Capital Assets	526,358	536,438	-1.9
Total Assets	**3,711,150,653**	**3,330,230,248**	**11.4**
Deferred Outflows of Resources	**288,727**	**398,255**	**-27.5**
Accounts Payable	9,861,326	27,290,762	-63.9
OPEB Obligation	837,636	1,929,126	-56.6
Securities Lending Collateral	21,725,160	19,284,048	12.7
Total Liabilities	**32,424,122**	**48,503,936**	**-33.2**
Deferred Inflows of Resources	**1,357,751**	**496,723**	**173.3**
Net Position Restricted for Pensions	**$ 3,677,657,507**	**$ 3,281,627,844**	**12.1**

The decrease in cash and receivables is primarily attributable to a decrease of investment sales receivable as of June 30, 2024. Fluctuations in this area are normal, based on investment activity.

The System's investments represent the main component of total assets. These investments include equities, fixed income, limited partnerships, hedge funds, and short-term investments. The increase in fair value of investments as of June 30, 2024, is a result of the positive investment performance during the fiscal year. The fiscal year 2024 investment return was 13.29% as calculated on a time-weighted rate of return methodology.

Capital assets decreased in fiscal year 2024 due to the depreciation of existing assets.

Deferred outflows of resources are related to Other Post-Employment Benefits (OPEB), required by Governmental Accounting Standards Board (GASB) Statement 75. The deferred outflows of resources relate to the timing of contributions paid and changes in assumptions.

The liabilities in fiscal year 2024 consist of accounts payable, OPEB obligation, and Securities Lending Collateral. The decrease in accounts payable for fiscal year 2024 is attributable to lower investment purchases payable. Fluctuations in this area are normal, based on investment activity. The largest component of liabilities is securities lending collateral. This represents the amount owed for collateral to be returned as the result of investment securities lent. The corresponding securities lending collateral asset is valued at a lower amount than the securities lending collateral liability due to the fair value of the securities on loan being less than the collateral value.

Deferred inflows of resources are related to OPEB. The deferred inflows of resources relate primarily to the amortization of changes in actuarial assumptions.

The System's net position restricted for pensions was $3.678 billion as of June 30, 2024, a $396.0 million increase from the $3.282 billion net position as of June 30, 2023.

Summarized Comparative Statements of Changes in Fiduciary Net Position

	Year Ended June 30, 2024	Year Ended June 30, 2023	% Change 2024 / 2023
Contributions	$ 270,240,170	$ 244,262,169	10.6
Net Investment Income	432,121,321	264,756,429	63.2
Other Income	179	1,954	-90.9
Total Additions	**702,361,670**	**509,020,552**	**38.0**
Benefits	300,081,057	289,056,536	3.8
Administrative Expenses	6,250,950	5,529,258	13.1
Total Deductions	**306,332,007**	**294,585,794**	**4.0**
Net Increase	396,029,663	214,434,758	84.7
Net Position-Beginning	3,281,627,844	3,067,193,086	7.0
Net Position-Ending	**$ 3,677,657,507**	**$ 3,281,627,844**	**12.1**

Net investment income, a primary component of plan additions, was $432.1 million for fiscal year 2024, which represented an 13.29% return for the fiscal year ended June 30, 2024. In comparison, the fiscal year 2023 income of $264.8 million represented an investment return of 8.88%. Annual fluctuations within the broad investment markets are outside the control of the System and are expected to fluctuate from year to year. Fiscal year 2024 was a good year as MPERS outperformed its policy index by 1.0%, building on the positive fiscal year 2023 investment return of 8.88% which outperformed the policy index by 2.44%. The Board of Trustees has approved a diversified asset allocation that, over long periods of time, is expected to realize the assumed actuarial rate of investment return of 6.50%.

Total benefits increased in fiscal year 2024 by $11.0 million from fiscal year 2023 due to inflation driving up the annual cost-of-living adjustment (COLA) and due to an increase in the total number of retirees.

The increase in fiscal year 2024 administrative expenses is due to inflation putting upward pressure on the annual cost of living adjustment causing higher personnel and related benefit expenses.

CURRENTLY KNOWN FACTS AND RECENT EVENTS

Based on the June 30, 2024 actuarial valuation, the Board of Trustees approved a decrease to the required state contribution rate for non-uniformed payroll (MoDOT, civilian patrol, and MPERS) to 37.013%, effective July 1, 2025. The rate approved for uniformed patrol decreases to 58.005%.

Based on the June 30, 2023 actuarial valuation, the Board of Trustees approved a decrease to the required state contribution rate for non-uniformed payroll (MoDOT, civilian patrol, and MPERS) to 52.008%, effective July 1, 2024. The rate approved for uniformed patrol increased to 58.491%.

CONTACTING THE RETIREMENT SYSTEM'S MANAGEMENT

This financial report is designed to provide a general overview of the System's finances. Questions about this report or requests for additional financial information should be sent to:

MoDOT and Patrol Employees' Retirement System
PO Box 1930
Jefferson City, MO 65102-1930
mpers@mpers.org

Statement of Fiduciary Net Position

As of June 30, 2024

ASSETS:		
Cash	$	783,073
Receivables		
Contributions		11,303,341
Accrued Interest and Income		11,273,296
Investment Sales		7,877,386
Other		27,392
Total Receivables		30,481,415
Investments, at Fair Value		
Equities		195,503,067
Fixed Income		1,120,116,319
Limited Partnerships		1,728,528,771
Hedge Funds		28,233,970
Short-Term Investments		585,835,535
Total Investments		3,658,217,662
Invested Securities Lending Collateral		21,142,145
Capital Assets, net of Depreciation		
Land		188,319
Building and Improvements		745,828
Furniture, Equipment and Software		3,469,737
Accumulated Depreciation		(3,877,526)
Capital Assets, net of Depreciation		526,358
TOTAL ASSETS	**$**	**3,711,150,653**
DEFERRED OUTFLOWS OF RESOURCES	**$**	**288,727**
LIABILITIES:		
Accounts Payable	$	2,146,932
OPEB Obligation		837,636
Security Lending Collateral		21,725,160
Investment Purchases		7,714,394
TOTAL LIABILITIES	**$**	**32,424,122**
DEFERRED INFLOWS OF RESOURCES	**$**	**1,357,751**
NET POSITION RESTRICTED FOR PENSIONS	**$**	**3,677,657,507**

See accompanying Notes to the Financial Statements.

Statement of Changes in Fiduciary Net Position

For the Year Ended June 30, 2024

ADDITIONS:	
Contributions	
Employer	$ 254,358,101
Employee	8,249,824
Service Transfers from Other System	6,634,554
Other	997,691
Total Contributions	270,240,170
Investment Income from Investing Activities	
Net Appreciation in Fair Value of Investments	321,420,873
Interest and Dividends	155,816,493
Investment Expenses	(45,272,091)
Net Investment Gain	431,965,275
Income from Securities Lending Activities	
Securities Lending Gross Income	1,293,969
Securities Lending Expenses, net	(1,137,923)
Net Income from Securities Lending Activities	156,046
Other Income	179
TOTAL ADDITIONS	**$ 702,361,670**
DEDUCTIONS:	
Benefit Expenses	
Retiree and Survivor Annuity Benefits	$ 279,354,910
BackDROP Payments	12,241,819
Disability Benefits	2,444,581
Death Benefits	960,000
Service Transfer Payments	4,082,999
Employee Contribution Refunds	996,748
Total Benefits Expenses	300,081,057
Administrative Expenses	6,250,950
TOTAL DEDUCTIONS	**$ 306,332,007**
NET INCREASE	$ 396,029,663
NET POSITION RESTRICTED FOR PENSIONS	
Beginning of Year	**$ 3,281,627,844**
End of Year	**$ 3,677,657,507**

See accompanying Notes to the Financial Statements.

NOTE 1 - SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

As established under Section 104.020 of the Revised Statutes of Missouri (RSMo.), the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (MPERS) is a body corporate and an instrumentality of the State of Missouri (State). Due to the nature of MPERS' reliance on funding from the Missouri Department of Transportation (MoDOT) and the Missouri State Highway Patrol (MSHP) and control of the overall plan document by the legislative and executive branches of state government, MPERS is considered a part of the State of Missouri financial reporting entity and is included in the State's financial reports as a component unit shown as a pension trust fund.

Note 1 (a) - Basis of Accounting

The financial statements were prepared using the accrual basis of accounting. Contributions are due to MPERS when employee services have been performed. Contributions are recognized as revenues when due, pursuant to statutory requirements. Benefits are recognized when due and payable and expenses are recorded when the corresponding obligations are incurred. Dividend income is recognized when dividends are declared. Interest income is recognized when earned.

Note 1 (b) - Method Used to Value Investments

Investments are reported at fair value on a trade date basis. Bonds and stocks traded on a national or international exchange are valued at the reported sales price at current exchange rates. Mortgages are valued on the basis of future principal and interest payments and are discounted at prevailing interest rates for similar instruments. The fair value of real estate and timber investments are based on net asset value estimates provided by the general partners' administrators or portfolio managers, which are compared to independent appraisals. Investments that do not have an established market are reported at estimated fair value. The fair value of the hedge fund portfolios and partnership portfolios are based on valuations of the underlying assets as reported by the general partner or portfolio manager.

Note 1 (c) - Net Investment in Capital Assets

MPERS capitalizes assets with an expected useful life greater than one year and a cost greater than $5,000. Capital assets are depreciated on the straight-line method over the estimated useful lives of the related assets. The estimated useful lives are as follows:

Furniture, Equipment and Software	3-10 years
Building and Improvements	30 years

Note 1 (d) - Use of Estimates

The preparation of financial statements in conformity with U.S. generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

NOTE 2 – PLAN DESCRIPTIONS AND CONTRIBUTION INFORMATION

MPERS is a body corporate and an instrumentality of the state as a multiple-employer, public employee retirement system with one plan that has three benefit structures known as the Closed Plan, the Year 2000 Plan, and the Year 2000 Plan-2011 Tier. The plan provides retirement, survivor, and disability benefits for employees of MoDOT, MSHP, and MPERS. The plan is administered in accordance with the requirements of a cost sharing, multiple-employer, public employee retirement plan under the Revised Statutes of Missouri. In MPERS are vested the powers and duties specified in sections 104.010 to 104.312, 104.601 to 104.805, and 104.1003 to 104.1093, RSMo., and such other powers as may be necessary or proper to enable it, its officers, employees, and agents to carry out fully and effectively all the purposes outlined pursuant to these sections. Responsibility for the operation and administration of the System is vested in the Board of Trustees, which consists of eleven members, four elected by the active and retired plan members, three Highway and Transportation Commissioners, a State Senator appointed by the President Pro Tempore of the Senate, a State Representative appointed by the Speaker of the House, and the MoDOT Director and MSHP Superintendent who serve as ex- officio members. Detailed information regarding contributions can be found in Note 5.

Generally, all covered employees hired before July 1, 2000, are eligible for membership in the Closed Plan. All covered employees hired on or after July 1, 2000, and before January 1, 2011, are eligible for membership in the Year 2000 Plan. All covered employees hired on or after January 1, 2011, are eligible for membership in the Year 2000 Plan's 2011 Tier.

Membership in the Closed Plan, Year 2000 Plan, and 2011 Tier as of June 30, 2024

	Closed	Year 2000	Tier 2011	Total
Retirees, Beneficiaries, and Disabilities Currently Receiving Benefits	4,736	4,968	99	9,803
Terminated Employees Entitled to But Not Yet Receiving Benefits	756	1,028	427	2,211
Active Employees				
Vested	1,103	1,803	1,780	4,686
Non-Vested	3	48	2,151	2,202
Total Membership	**6,598**	**7,847**	**4,457**	**18,902**

Closed Plan Description

Employees covered by the Closed Plan are fully vested for benefits upon receiving 5 years of creditable service. Under the Closed Plan, MoDOT and civilian employees may retire with full benefits upon the earliest of attaining:

- Age 65 with 4 or more years of creditable service (active);
- Age 65 with 5 or more years of creditable service (terminated & vested);
- Age 60 with 15 or more years of creditable service (active or terminated & vested); or
- "Rule of 80" – at least age 48 with sum of member's age and service equaling 80 or more (active or terminated & vested).

The following provisions apply for uniformed patrol members of the Closed Plan:

- Age 55 with 4 or more years of creditable service (active);
- Age 55 with 5 or more years of creditable service (terminated & vested);
- "Rule of 80" – at least age 48 with sum of member's age and service equaling 80 or more (active or terminated & vested); or
- Mandatory retirement at age 60 (active).

All non-uniformed members may retire early, with reduced benefits, at age 55 with at least 10 years of creditable service.

The base benefit in the Closed Plan is equal to 1.6% multiplied by the final average pay multiplied by years of creditable service. For members of the uniformed patrol, the base benefit is calculated by applying the same formula, then multiplying the product by 1.333333.

Retired uniformed members will receive an additional benefit of $90 per month, plus cost-of-living adjustments (COLAs), until attainment of age 65. This payment, however, is reduced by any amount earned during gainful employment. This benefit is not available to uniformed members hired on or after January 1, 1995, or to vested deferred members.

For members employed prior to August 28, 1997, COLAs are provided annually based on 80% of the increase in the consumer price index for all urban consumers for the United States (CPI-U). The minimum rate is 4% and the maximum rate is 5%, until the cumulative amount of COLAs equals 65% of the original benefit. Thereafter, the 4% minimum rate is eliminated, and the annual COLA rate will be equal to 80% of the increase in the CPI-U (annual maximum of 5%). For members employed on or after August 28, 1997, COLAs are provided annually based on 80% of the increase in the CPI-U, up to a maximum rate of 5%.

The BackDROP is a payment option that is available to eligible members upon retirement. This option provides for a benefit to be calculated as if the member elected to retire at a previous date. If the BackDROP is elected, the monthly benefit payable on the actual retirement date is based on the benefit that would have been received by the member had he/she left employment and retired on the BackDROP date. In addition, the member will receive a lump sum payment equal to 90% of the life income annuity amount the member would have received during the BackDROP period. This lump sum amount includes any COLAs and other benefit increases; also, credit will be received for the unused sick leave balance as of the date of retirement.

The life income annuity payment option (which contains no provision for survivorship) and the life income with 60 or 120 month guaranteed payment options are available to all members. Joint and 50% or 100% survivor options are available if married at the time of retirement. In the Closed Plan, the reduction for the joint & 100% survivor option is based on the difference between the age of the member and the survivor. There is no reduction for the joint and 50% survivor option.

If a reduced joint and survivor option is chosen at the time of retirement and the spouse precedes the member in death, the benefit will revert back (pop-up) to a normal annuity, upon appropriate notification to MPERS.

Members may name a new spouse as beneficiary if:
- They were single at retirement and since married;
- They elected a spouse option at the time of retirement, the spouse preceded the member in death, and then a remarriage occurred.

The member has 1 year from the date of marriage to re-elect a payment option and name a new spouse.

All members who retire from active employment or long-term disability, or begin receiving normal or work-related disability benefits, on or after September 28, 1985, are provided a $5,000 death benefit payable to designated beneficiaries.

Year 2000 Plan Description
Employees covered by the Year 2000 Plan are fully vested for benefits upon earning 5 years of creditable service. Under the Year 2000 Plan, MoDOT and civilian employees may retire with full benefits upon the earliest of attaining:
- Age 62 and with 5 or more years of creditable service (active or terminated & vested);
- "Rule of 80" – at least age 48 with sum of member's age and service equaling 80 or more (active).

The following provisions apply for uniformed patrol members of the Year 2000 Plan:
- "Rule of 80" – at least age 48 with sum of member's age and service equaling 80 or more (active);
- Mandatory retirement at age 60 (active only).

All members may retire early with reduced benefits at age 57 with at least 5 years of creditable service.

The base benefit in the Year 2000 Plan is equal to 1.7% multiplied by the final average pay multiplied by years of creditable service. Members retiring under the Rule of 80, and uniform patrol members retiring at the mandatory retirement age (currently 60), receive an additional temporary benefit until age 62. The temporary benefit is equivalent to 0.8% multiplied by final average pay multiplied by years of creditable service.

COLAs are provided annually based on 80% of the increase in the CPI-U, up to a maximum rate of 5%.

The BackDROP is a payment option that may be available to members upon retirement. This option provides for a monthly benefit to be calculated as if the member elected to retire at a previous date. If the BackDROP is elected, the monthly benefit payable on the actual retirement date is based on the benefit that would have been received by the member had he/she left employment and retired on the BackDROP date. In addition, the member will receive a lump sum payment equal to 90% of the life income annuity amount the member would have received during the BackDROP period. This lump sum amount includes any temporary benefits, COLAs, and other benefit increases; also, credit will be received for the unused sick leave balance as of the date of retirement.

The life income annuity payment option (with no provision for survivorship) and the life income with 120 or 180 months guaranteed payment options are available to all members. Joint and 50% or 100% survivorship options are available if married at the time of retirement. The reduction for the joint and 50% or 100% survivor options is based on the member's age at retirement, as well as the age difference between the member and the survivor.

If a reduced joint and survivor option is chosen at the time of retirement and the spouse precedes the member in death, the benefit will revert back (pop-up) to a normal annuity, upon appropriate notification to MPERS.

Members may name a new spouse for survivor benefits if:
- They were single at retirement and since married;
- They elected a spouse option at the time of retirement, the spouse preceded the member in death, and then a remarriage occurred.

The member has 1 year from the date of marriage to re-elect the payment option and name a new spouse.

All members who retire from active employment or long-term disability, or begin receiving work-related disability benefits, on or after July 1, 2000, are provided a $5,000 death benefit payable to designated beneficiaries.

Year 2000 Plan-2011 Tier Description

Employees covered by the 2011 Tier are fully vested for benefits upon earning 5 years of creditable service if they were active on or after January 1, 2018. Under the 2011 Tier, MoDOT and civilian employees may retire with full benefits upon the earliest of attaining:

- Age 67 and with 5 or more years of creditable service (active or terminated & vested);
- "Rule of 90" – at least age 55 with sum of member's age and service equaling 90 or more (active only).

Active MoDOT and civilian employees may retire early with reduced benefits at age 62 with at least 5 years of creditable service. The following provisions apply for uniformed patrol members of the 2011 Tier:

- Age 55 and with 5 or more years of creditable service (active only);
- Mandatory retirement at age 60 with no minimum service amount (active only).

Terminated and vested uniformed patrol employees may retire at age 67 with 5 or more years of creditable service.

The base benefit in the 2011 Tier is equal to 1.7% multiplied by the final average pay multiplied by years of creditable service. Members retiring under the Rule of 90, and uniform patrol members retiring at the mandatory retirement age (currently 60) or at age 55 with 5 years of creditable service, receive an additional temporary benefit until age 62. The temporary benefit is equivalent to 0.8% multiplied by final average pay multiplied by years of creditable service.

COLAs are provided annually based on 80% of the change in the CPI-U, up to a maximum rate of 5%.

The life income annuity payment option (with no provision for survivorship) and the life income with 120 or 180 months guaranteed payment options are available to all members. Joint and 50% or 100% survivorship options are available if married at the time of retirement. The reduction for the joint and 50% or 100% survivor options is based on the member's age at retirement, as well as the age difference between the member and the survivor.

If a reduced joint and survivor option is chosen at the time of retirement and the spouse precedes the member in death, the benefit will revert back (pop-up) to a normal annuity, upon appropriate notification to MPERS.

Members may name a new spouse for survivor benefits if:

- They were single at retirement and since married;
- They elected a spouse option at the time of retirement, the spouse preceded the member in death, and then a remarriage occurred.

The member has 1 year from the date of marriage to re-elect the payment option and name a new spouse.

All members who retire from active employment or long-term disability, or begin receiving work-related disability benefits, on or after January 1, 2011, are provided a $5,000 death benefit payable to designated beneficiaries.

Contributions

Beginning January 1, 2011, employee contributions of 4% of gross pay are required for those covered by the Year 2000 Plan-2011 Tier.

Employer contributions are determined through annual actuarial valuations. Administrative expenses are financed through contributions from participating employers and investment earnings.

Participating employers are required to make contributions to the plan based on the actuarially determined rate. Detailed information regarding contributions can be found in Note 5.

NOTE 3 – DEPOSITS AND INVESTMENTS

The Board of Trustees has established policies and procedures by which funds are invested. Section 104.150, RSMo., provides the authority for the Board to invest MPERS funds. Plan assets are invested in a diversified portfolio following prudent standards for preservation of capital, with the goal of achieving the highest possible rate of return consistent with MPERS' tolerance for risk. The Board of Trustees establishes MPERS' asset allocation policy and may amend the policy. The following is MPERS' current asset allocation policy:

Asset Class	Target Allocation
Public Equity	40.0%
Private Equity	10.0%
Traditional Fixed Income	22.5%
Opportunistic Debt	7.5%
Real Assets	10.0%
Real Estate	10.0%
Cash	0.0%

Note 3 (a) - Deposit and Investment Risk Policies

Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of the System's investment in a single issuer. Within the traditional asset classes (equities and fixed income), the consultant will aggregate exposures across asset classes to create measures of concentration including industries, countries, and security issuer for Investment staff review.

Investment Custodial Credit Risk

Custodial credit risk is an investment risk that, in the event of the failure of the counterparty to a transaction, the System will not be able to recover the value of its investment or the collateral securities that are in the possession of an outside party. Investment securities are exposed to custodial credit risk if the securities are uninsured, are not registered in the name of the System, and are held by either: a) the counterparty or b) the counterparty's trust department or agent but not in the System's name. It is the policy of the System to require that all investments be clearly marked as to ownership and, to the extent possible, shall be registered in the name of the System.

Cash Deposit Custodial Credit Risk

Cash deposit custodial credit risk is the risk that, in the event of the failure of depository financial institution, the System will not be able to recover deposits or will not be able to recover collateral securities that are in the possession of an outside party. Missouri state law requires that all public funds must be collateralized with acceptable securities having fair values of at least 100% of the amount of funds on deposit (less any amount covered by FDIC insurance).

Market Risk

Market risk is the risk that the fair value of an investment will be adversely impacted due to a change in value of the underlying market. The three primary market risks prevalent in the System's investment portfolio are equity prices, interest rates, and foreign currencies. Equity risk is the risk that stock prices fall and/or the volatility in the equity market increases. Interest rate risk is the risk

that fixed income securities (or any investment primarily valued on a yield basis) will drop in value due to an increase in interest rates. Currency risk is the risk that changes to foreign exchange rates will adversely impact the fair value of non-U.S. Dollar denominated assets. The System protects the portfolio against market risks by adopting a diversified asset allocation that limits the amount of exposure to each underlying market risk. Market risks are also controlled by monitoring the types, amounts, and degree of risk that each investment manager takes for their specific mandate.

Investment Credit Risk

Investment credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. Unless authorized under a separate Investment Management Agreement or operating agreement, it is the policy of the System to limit fixed income managers to purchasing securities that possess a minimum credit rating of "Baa" by Moody's and "BBB" by Standard & Poor's. Issues subsequently downgraded below these ratings must be brought to the attention of the Chief Investment Officer.

Where counterparty risk is present, the System's investment managers seek to control credit risk through counterparty credit evaluations and approvals, counterparty credit limits and exposure monitoring procedures.

Note 3 (b) - Cash Deposits

Cash balances include short-term securities held by the custodial bank to meet future obligations and operating balances held by the depository bank. As of June 30, 2024, MPERS had a carrying amount of deposits of $783,073, and a bank balance of $948,142. The FDIC covered $250,000 of the bank balance with the remaining balance being fully collateralized.

Note 3 (c) – Concentrations

No investments in any one organization (other than those issued or sponsored by the U.S. government and those in pooled investments) represent 5% of plan net position.

Note 3 (d) – Rate of Return

For the year ended June 30, 2024, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 13.36%. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Note 3 (e) – Investments

The following table shows MPERS' investments by type.

Summary of Investments by Type as of June 30, 2024

	Carrying Amount	Fair Value
Equities	$ 185,588,950	$ 195,503,067
Fixed Income	1,140,989,002	1,120,116,319
Limited Partnerships	1,489,070,781	1,728,528,771
Hedge Funds	21,525,651	28,233,970
Short Term Securities	585,823,418	585,835,535
Securities Lending Collateral	21,142,145	21,142,145
Total Investments	**$ 3,444,139,947**	$ 3,679,359,807
Reconciliation to Statement of Fiduciary Net Position:		
Less: Securities Lending Collateral		(21,142,145)
Investments per Statement of Fiduciary Net Position		**$ 3,658,217,662**

Certain investments are not listed on national exchanges, over-the-counter markets, nor do they have quoted market prices. Their valuation is based on the most current net asset values, independent appraisals, and/or good faith estimates of the investment's fair value provided by the general partner or portfolio manager, cash flow adjusted through fiscal year end. The estimated fair value of these investments may differ significantly from values that would have been used had a ready market existed. The following investments were priced using those methods and comprised 48.02% of the total fair value of the System's investments as of June 30, 2024:

	Fair Value
Hedge Funds	$ 28,233,970
Limited Partnerships	1,728,528,771
	$1,756,762,741

Note 3 (f) – Fair Value Measurements

MPERS categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset and give the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (level 1 measurements) and the lowest priority to unobservable inputs (level 3 measurements).

Level 1: Unadjusted quoted prices for identical instruments in active markets.

Level 2: Quoted prices for similar instruments in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which all significant inputs are observable.

Level 3: Values derived from valuation techniques in which significant inputs are unobservable. Investments that are measured at fair value using the net asset value per share (or its equivalent) as a practical expedient are not classified in the fair value hierarchy.

Investments Measured at Fair Value, June 30, 2024

Investments by Fair Value Level	**Fair Value**	**Level 1**	**Level 2**	**Level 3**
Short Term Securities	$ 589,350,280	$ 589,350,280	$ 0	$ 0
Debt Securities				
Collateralized Debt Obligations	447,349,634	0	235,571,652	211,777,982
Commercial Mortgage-Backed Securities	229,556,136	0	166,972,213	62,583,923
Corporate Bonds	12,615,430	0	11,809,429	806,001
Government Mortgage-Backed Securities	197,398,561	0	194,172,409	3,226,152
Municipal Bonds	110,729,074	0	109,666,465	1,062,609
U.S. Government Agencies	45,721,498	0	45,721,498	0
U.S. Treasury Securities	50,585,069	0	50,585,069	0
Funds – Corporate Bonds	10,981,484	10,981,484	0	0
Total Debt Securities	1,104,936,886	10,981,484	814,498,735	279,456,667
Equity Securities				
Communication Services	333,049	333,049	0	0
Consumer Discretionary	2,655,603	2,655,603	0	0
Consumer Staples	2,435,521	2,435,521	0	0
Energy	1,814,647	1,814,647	0	0
Equity - Other	8,294,400	8,294,400	0	0
Financials	81,890,672	77,945,141	3,945,531	0
Health Care	14,244,769	14,244,769	0	0
Industrials	11,856,621	11,856,621	0	0
Information Technology	4,215,866	4,215,866	0	0
Materials	1,463,926	1,463,926	0	0
Real Estate	2,267,659	2,267,659	0	0
Utilities	594,927	594,927	0	0
Total Equity Securities	132,067,660	128,122,129	3,945,531	0
Private Markets				
Opportunistic Debt	326,042,681	23,130,506	21,950,255	280,961,920
Private Equity	439,286,053	(1,800,000)	0	441,086,053
Real Assets	436,933,900	19,711,572	0	417,222,328
Real Estate	308,172,197	9,686,689	0	298,485,508
Total Private Markets	1,510,434,831	50,728,767	21,950,255	1,437,755,809
Investment Derivative Instruments				
Swaps	940,035	0	940,035	0
Total Investment Derivative Instruments	940,035	0	940,035	0
Total Investment by Fair Value Level	$3,337,729,692	**$ 779,182,660**	**$ 841,334,556**	**$1,717,212,476**
Investments Measured at Net Asset Value				
In-Liquidation	434,642			
Multi-Strategy	247,989,675			
Opportunistic Debt	27,787,622			
Private Real Estate Fund	55,700,613			
Structured Credit - Relative Value	11,706			
Total Investments Measured at Net Asset Value	331,924,258			
Total Investments	**$3,669,653,950**			
Reconciliation to Statement of Fiduciary Net Position				
Total Investments Measured at Fair Value and Derivatives	$3,669,653,950			
Investment Sales Receivable	(7,877,386)			
Investment Purchases Payable	7,714,394			
Accrued Interest and Income	(11,273,296)			
Total Investments per Statement of Fiduciary Net	**$3,658,217,662**			

Investments listed as level 1 include securities and futures contracts where the price comes from an exchange.

Investments listed as level 2 include securities where an independent pricing evaluator had direct observable information including: trading volume, multiple sources of market data and benchmark spreads. The equity index swap is included because the valuation inputs include an observable interest rate and the underlying index.

Investments listed as level 3 include securities where an independent pricing evaluator did not have direct observable information and had limited market information for comparable securities. Significant inputs used in the valuation are not available aside from the evaluator providing the price. Direct investments in private equity, real estate, credit, and real assets are included because the valuation techniques utilize discounted cash flows or other non-observable market information by manager.

Private Markets Measured at Fair Value as of June 30, 2024

Private Markets	Fair Value	Unfunded Commitments
Private Equity	$ 439,286,053	$ 202,177,414
Real Estate	308,172,197	183,760,074
Real Assets	436,933,900	83,519,007
Opportunistic Debt	326,042,681	242,101,391
Total Private Markets	**$ 1,510,434,831**	**$ 711,557,886**

Private Markets

Private equity, real estate, real assets, and opportunistic debt are the four asset classes that fall into the category of private market funds. These funds invest in the equity or debt of private companies.

Private Equity: The private equity portfolio includes 33 direct fund investments and three fund of fund investments. These funds mostly invest in private companies adding value through operational or industry expertise and vast networks. The majority of the private equity allocation is in buyout funds with a smaller portion in venture capital and growth equity funds. These funds are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over the span of six to ten years.

Real Estate: The real estate portfolio consists of 22 real estate funds. The noncore real estate book includes 20 real estate funds that invest in value-add or opportunistic strategies. These funds are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over the span of six to ten years. The remaining four investments are in core real estate funds. Three of these funds are open-ended. Three are eligible for redemption on a quarterly basis and one on a daily basis.

Real Assets: The real asset portfolio contains 29 funds that invest in private energy, aviation, mining, and shipping companies. The timber portfolio, which includes both ownership in timber funds and direct timber investments, is also within the real assets portfolio. The timber portfolio has 12 direct timber investments. These funds and investments are not eligible for redemption. Distributions are received as underlying investments and investments within the funds are liquidated, which on average can occur over the span of six to ten years.

Opportunistic Debt: The opportunistic debt portfolio, comprised of 32 funds, provide financing to various companies. While this portfolio has a U.S. bias, some funds invest internationally with exposures in Europe and Asia. These funds are not eligible for redemption. Distributions are received as underlying investments within the funds are liquidated, which on average can occur over the span of three to five years.

Investments Measured at Net Asset Value as of June 30, 2024

Investments at Net Asset Value	Net Asset Value	Unfunded Commitments	Redemption Frequency (If Currently Eligible)	Redemption Notice Period
In-Liquidation	$ 434,642	$ 0	In Liquidation	
Multi-Strategy	247,989,675	0	Monthly	60-90 days
Opportunistic Debt	27,787,622	0	Quarterly	45 days
Structured Credit – Relative Value	11,706	0	Quarterly	60 days
Private Real Estate Funds	55,700,613	0	Daily	90 days
Total Investments at Net Asset Value	**$331,924,258**	**$ 0**		

Hedge Funds

Hedge Funds in Liquidation: MPERS currently has a small investment in three hedge funds that are in liquidation. These funds have closed and MPERS is awaiting the sale of final assets.

Multi-Strategy: Consisting of one fund, this group aims to pursue varying strategies in order to diversify risks and reduce volatility. Due to contractual lock-up restrictions, the value of these investments is eligible for redemption in the next six months.

Opportunistic Debt: Consisting of one fund, this group uses public, but illiquid, fixed income structuring to achieve higher returns by separating and securitizing the unique credit risk tranches.

Structured Credit – Relative Value: MPERS currently has one fund that is in liquidation in this strategy.

Private Real Estate Funds

MPERS invests in three core private real estate funds that are commingled in nature. Three are eligible for redemption on a quarterly basis and one on a daily basis.

Note 3 (g) – Investment Interest Rate Risk

The following table summarizes the maturities of government obligations, corporate bonds, convertible corporate bonds, mortgages, and asset-backed securities which are exposed to interest rate risk.

Summary of Weighted Average Maturities as of June 30, 2024

		Investment Maturities (in years)			
Investment Type	**Fair Value**	**Less than 1**	**1 – 5**	**6 – 10**	**More than 10**
Asset-Backed Securities	$ 444,656,327	$ 908,023	$ 55,894,470	$ 173,600,722	$ 214,253,112
Commercial Mortgage-Backed Securities	211,316,457	0	0	17,906,415	193,410,042
Corporate Bonds	12,462,883	2,676,264	7,080,874	199,651	2,506,094
Government Agencies	45,197,213	0	0	5,205,117	39,992,096
Government Bonds	23,031,832	0	1,317,262	0	21,714,570
Government Mortgage-Backed Securities	196,405,448	2,863	114,143	321,159	195,967,283
Government-Issued Commercial Mortgage-Backed Securities	6,191,625	0	0	0	6,191,625
Index Linked Government Bonds	27,188,576	3,131,386	12,941,622	0	11,115,568
Municipal/Provincial Bonds	131,343,751	4,347,621	18,689,763	16,357,669	91,948,698
Non-Government-Backed C.M.O.'s	11,340,724	0	401,651	2,002,636	8,936,437
Total	**$1,109,134,836**	**$ 11,066,157**	**$ 96,439,785**	**$ 215,593,369**	**$ 786,035,525**

NOTE 3 (h) – Investment Credit Ratings

The table below summarizes the credit ratings of the government obligations, corporate bonds, mortgages, and asset-backed securities.

Summary of Investment Credit Ratings as of June 30, 2024

Investment Type	AAA	AA	A	BBB	CCC
Asset-Backed Securities	$ 155,846,952	$ 74,826,974	$ 0	$ 0	$ 544,457
Commercial Mortgage-Backed Securities	24,230,327	926,424	5,521,455	0	0
Corporate Bonds	777,584	2,506,094	5,956,133	3,223,072	0
Government Agencies	0	42,451,034	0	0	0
Government Bonds	0	0	0	0	0
Government Mortgage-Backed Securities	0	0	0	0	0
Government-Issued Commercial Mortgage-Backed Securities	0	0	0	0	0
Index Linked Government Bonds	0	0	0	0	0
Municipal/Provincial Bonds	22,351,511	72,936,267	0	0	0
Non-Government-Backed C.M.O.'s	2,818,942	0	0	86,376	1,594,278
Total	**$ 206,025,316**	**$ 193,646,793**	**$ 11,477,588**	**$ 3,309,448**	**$ 2,138,735**

Continued on next page.

Summary of Investment Credit Ratings as of June 30, 2024 (continued)

Investment Type	CC	D	Not Rated	US Government Guaranteed	Total
Asset-Backed Securities	$ 0	$ 0	$ 213,437,944	$ 0	$ 444,656,327
Commercial Mortgage-Backed Securities	0	0	180,636,911	1,340	211,316,457
Corporate Bonds	0	0	0	0	12,462,883
Government Agencies	0	0	0	2,746,179	45,197,213
Government Bonds	0	0	4,074,531	18,957,301	23,031,832
Government Mortgage-Backed Securities	0	0	39,640	196,365,808	196,405,448
Government-Issued Commercial Mortgage-Backed Securities	0	0	0	6,191,625	6,191,625
Index Linked Government Bonds	0	0	8,836,296	18,352,280	27,188,576
Municipal/Provincial Bonds	0	0	36,055,973	0	131,343,751
Non-Government-Backed C.M.O.'s	0	0	6,841,128	0	11,340,724
Total	**$ 0**	**$ 0**	**$ 449,922,423**	**$ 242,614,533**	**$1,109,134,836**

Note 3 (i) – Investment Foreign Currency Risk

Currency risk is the risk that changes to foreign exchange rates will adversely impact the fair value of non-U.S. Dollar denominated assets. The following table summarizes MPERS' exposure to foreign currencies for all assets that are held in custody at the System's custodial bank. MPERS has exposure to foreign currencies in other areas of the portfolio, such as commingled international funds, hedge funds and private partnerships, which are held in the custody of other banks acting as administrators for the funds.

Exposure to Foreign Currency Risk as of June 30, 2024

Foreign Currency	Equities	Fixed Income	Real Estate / Partnerships	Cash and Cash Equivalents	Total
Australian Dollar	$ 489,084	$ 0	$ 0	$ 5,663	$ 494,747
British Pound Sterling	292,800	1,704,977	1	30,078	2,027,856
Canadian Dollar	294,066	0	4,396,000	4,330	4,694,396
Danish Krone	0	777,584	0	5,987	783,571
Euro	678,205	1,045,533	35,250,157	115,063	37,088,958
Hong Kong Dollar	350,439	0	0	0	350,439
Hungarian Forint	0	0	0	1,362	1,362
New Israeli Shekel	0	0	0	262	262
Japanese Yen	814,930	0	0	0	814,930
Singapore Dollar	327,994	0	0	0	327,994
Swedish Krona	74,260	0	0	0	74,260
Swiss Franc	91,999	0	0	0	91,999
Total Exposure Risk	**$ 3,413,777**	**$ 3,528,094**	**$39,646,158**	**$ 162,745**	**$46,750,774**

Note 3 (j) – Securities Lending

In accordance with the Board of Trustees' investment policy, MPERS participates in a securities lending program. The Northern Trust Company administers the program. There are no restrictions on the amount of securities that may be lent.

Securities that may be loaned include U.S. government and agency securities, corporate equity, and fixed income securities. Collateral may include cash, U.S. government securities and irrevocable letters of credit. U.S. securities are loaned in exchange for collateral valued at 102% of the fair value of the securities, plus any accrued interest. Non-U.S. securities are loaned in exchange for collateral valued at 105% of the fair value of the securities, plus any accrued interest. On June 30, 2024, MPERS had no credit risk exposure to borrowers since the amount of collateral exceeded the amount of the loans.

Non-cash collateral cannot be pledged or sold unless the borrower defaults. The average term of the System's loans was approximately 165 days as of June 30, 2024. Cash open collateral is invested in a short-term investment pool, which had an interest sensitivity of 22 days as of June 30, 2024. Cash collateral may also be invested separately in "term loans", in which case the investments match the loan term. These loans can be terminated on demand by either lender or borrower. There were no known violations of legal or contractual provisions, or borrower or lending agent default losses. There were no dividends or coupon payments owing on the securities lent. Securities lending earnings are credited on approximately the fifteenth day of the following month.

Indemnification deals with a situation in which a client's securities would not be returned due to the insolvency of a borrower and Northern Trust would fail to live up to its contractual responsibilities relating to the lending of those securities. Northern Trust's responsibilities include performing appropriate borrower and collateral investment credit analyses and demanding adequate types and levels of collateral.

The following table summarizes the collateral held (including both cash collateral recognized in the Statement of Fiduciary Net Position and non-cash collateral).

Collateral Held as of June 30, 2024

Investment Type	Carrying Amount of Cash Collateral	Fair Value of Non-Cash Collateral
Equities	$14,845,762	$29,747,836
Corporate Fixed	2,820,455	0
Government & Government-Sponsored Securities	2,882,538	4,934,137
Agencies	1,176,405	0
Total	**$21,725,160**	**$34,681,973**

Note 3 (k) – Derivatives

A derivative financial instrument is an investment whose value depends on the values of one or more underlying assets, financial indexes, or commodity prices. These investments include futures contracts, options contracts, and forward foreign currency exchange. Derivative financial instruments involve credit risk and market risk, as described in Note 3(a), in varying levels.

Through MPERS' external managers, MPERS holds investments in futures contracts, swaps contracts, options contracts, and forward foreign currency exchange contracts. MPERS enters into futures and swaps contracts to gain exposure to certain markets and enters into forward foreign exchange contracts primarily to hedge foreign currency exposure.

The notional value related to these derivative instruments is generally not recorded in the financial statements; however, the fair value for the various contracts in MPERS' portfolio as of June 30, 2024, is recorded in investments on the Statement of Fiduciary Net Position. The total changes in fair value for the year are recorded in investment income on the Statement of Changes in Fiduciary Net Position.

Investment Derivatives as of June 30, 2024

Type	Classification	Notional Value	Unrealized Gain
Futures Contracts	Investments, at fair value	$ 699,350,735	$ 73,429,035
Swaps Contracts	Investments, at fair value	481,326,664	13,843,079
Total		**$1,180,677,399**	**$ 87,272,114**

Through the use of derivatives, MPERS is exposed to risk that the counterparties involved in the contracts are unable to meet the terms of their obligation. MPERS' investment managers seek to control this risk through counterparty credit evaluations and approvals, counterparty credit limits, and exposure monitoring procedures. MPERS anticipates the counterparties will be able to satisfy their obligations under contract.

At June 30, 2024, the counterparties' credit ratings for swaps are subject to credit risk as shown in the table below. Derivative instruments traded on the exchange are not subject to counterparty risk and therefore are not included in the table below.

Counterparty Credit Ratings as of June 30, 2024

Quality Rating	Swaps
A+	$ 481,326,664
Total Subject to Credit Risk	**$ 481,326,664**

NOTE 4 – RECEIVABLES

Receivables as of June 30, 2024

Type	Total
Contributions – MoDOT	$ 6,974,957
Contributions – MSHP Non-Uniformed	1,508,059
Contributions – MSHP Uniformed	2,491,734
Contributions – MPERS	328,591
Investment Interest & Income	11,273,296
Investment Sales	7,877,386
Miscellaneous	27,392
Total	**$30,481,415**

NOTE 5 – CONTRIBUTIONS

MoDOT, MSHP, and MPERS make contributions to the System, as do employees covered under the Year 2000 Plan-2011 Tier. MPERS' permanent funding policy provides for actuarially determined employer contributions using the entry-age actuarial cost method. As of June 30, 2024, the funding policy has a 15-year closed amortization period for all unfunded liabilities. Actuarially determined rates, expressed as percentages of annual covered payroll, provide for amounts sufficient to fund those benefits designated by state statute to be funded in advance. Actuarial assumptions used to compute contribution requirements are the same as those used to compute the pension benefit obligation. The employee contribution rate for members of the Year 2000 Plan-2011 Tier is set by statute.

Required employer contributions totaling $254,358,101 for fiscal year 2024, represent funding of normal costs and amortization of the unfunded accrued liability. Actual contributions made were 100% of required contributions. Contribution rates for the fiscal year ended June 30, 2024, as determined by the actuarial valuation for the year ended June 30, 2022, are shown in the following table.

The Board established actual rates to be the same as the actuarially determined rates.

Contribution Rates

MoDOT, MPERS & Civilian Patrol	Uniformed Patrol	2011 Tier Employee
58.00%	58.00%	4.00%

In September 2014, the Board adopted a contribution stabilization reserve fund from experience gains in an effort to keep contribution rates relatively level over time. In February 2015, the Board established a maximum of $250 million in the contribution stabilization reserve fund. . In February 2024, the Board established separate maximums of $250 million and $75 million for the MoDOT, MPERS & Civilian Patrol(Non-Uniformed) and Uniformed contribution stabilization reserve funds, respectively. The balance of the Non-Uniformed reserve fund was $250,000,000 and the balance of the Uniformed reserve fund was zero as of June 30, 2024.

NOTE 6 – DEFERRED RETIREMENT OPTION PROGRAM

MPERS currently provides a BackDROP option. This is an election made at the time of actual retirement. In effect, it provides members an option to elect to receive a portion of their benefits as cash. Since the election is not made until the member actually retires, the option is not treated as a DROP provision in accordance with generally accepted accounting principles.

NOTE 7 – NET PENSION LIABILITY OF EMPLOYERS

The components of the net pension liability of the employers as of June 30, 2024, were as follows:

Total pension liability	$ 4,963,323,460
Plan fiduciary net position	(3,677,657,507)
Employers' net pension liability	$ 1,285,665,953
Plan fiduciary net position as a percentage of the total pension liability	74.10%
Covered payroll	$ 438,993,763
Employers' net pension liability as a percentage of covered payroll	292.87%

Actuarial Assumptions

The total pension liability amounts were determined by actuarial valuations as of June 30, 2024, using the following actuarial assumptions, applied to all prior periods included in the measurement:

Inflation (price inflation)	2.25%
Salary Increases (includes 3.00% wage inflation)	3.00% to 10.50%
Investment Rate of Return	6.50%

Post-retirement healthy mortality rates are used to measure the probabilities of members dying after retirement. The rates currently in use are from the Pub-2010 General, Healthy Retiree, Amount-Weighted, Below-Median Income tables for males and females for Non-Uniformed members and Pub-2010 Public Safety Healthy Retiree, Amount-Weighted, tables for males and females for Uniformed members. Rates are decreased by 5% for non-uniform males and increased by 4% for uniform males. The assumed rates are adjusted for mortality improvement back to the observation period base year of 2010 and then projected generationally from 2010 to 2019 using scale MP-2021 and 90% of scale MP-2021 for years following 2019.

Pre-retirement mortality rates currently in use for active lives are the Pub-2010 General, Employee, Amount-Weighted, Below-Median Income tables for males and females for Non-Uniformed members and the Pub-2010 Public Safety Employee, Amount-Weighted, tables for males and females for Uniformed members. The assumed rates are adjusted for mortality improvement back to the observation period base year of 2010 and then projected generationally from 2010 to 2019 using scale MP-2021 and 90% of scale MP-2021 for years following 2019.

Post-Retirement Disabled mortality rates currently in use for disabled lives are the Pub-2010 General Disabled Retiree, Amount-Weighted tables for males and females for Non-Uniformed members and the Pub-2010 Public Safety Disabled Retiree, Amount-Weighted tables for males and females for Uniformed members. The assumed rates are adjusted for mortality improvement back to the observation period base year of 2010 and then projected generationally from 2010 to 2019 using scale MP-2021 and 90% of scale MP-2021 for years following 2019.

The long-term (30 year) expected rate of return on pension plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of pension plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return were adopted by the plan’s trustees after considering input from the plan’s investment consultants and actuary. These estimates for each major asset class included in MPERS’ target asset allocation as of June 30, 2024, (see Note 3) are summarized in the following table:

Asset Class	Long-Term Expected Rate of Return
Global Equity	2.4%
Private Equity	6.1%
Fixed Income	2.4%
Opportunistic Debt	5.7%
Real Assets	4.0%
Real Estate	3.4%

Discount Rate

A single discount rate of 6.50% was used to measure the total pension liability. This single discount rate was based on the expected rate of return on pension plan investments of 6.50%. The projection of cash flows used to determine this single discount rate assumed that plan member contributions will be made at the current contribution rate and that employer contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based on these assumptions, the pension plan’s fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Regarding the sensitivity of the net pension liability to changes in the single discount rate, the following presents the plan’s June 30, 2024 net pension liability, calculated using a single discount rate of 6.50%, as well as what the plan’s net pension liability would be if it were calculated using a single discount rate that is 1-percentage-point lower or 1-percentage-point higher:

Current Single Discount			
	1% Decrease 5.50%	**Rate Assumption 6.50%**	**1% Increase 7.50%**
Net Pension Liability	$1,895,833,955	$1,285,665,953	$781,744,625

NOTE 8 – EMPLOYER PROPORTIONATE SHARE

MPERS, as the administrative agent for the pension system, is also an employer of the pension system. The administrative expenses of the pension system are included in the deductions to the pension system's fiduciary net position. While the employer contributions of the other participating employers are funded from outside revenue sources, the employer contributions of MPERS are funded from sources already recognized as revenues, such as earnings on plan investments or contributions paid by the other participating employers. Attempting to allocate a portion of the net pension liability to MPERS as an employer would result in an allocation of the net pension liability to the other participating employers. Accordingly, MPERS excludes its contributions from the employer proportionate share calculation for the reporting of a net pension liability, by assigning itself a proportionate share of 0%. This exclusion, in essence, shifts the portion of the net pension liability that would accrue to MPERS to the other participating employers.

NOTE 9 – PERSONNEL SERVICES AND RETIREMENT PLAN

MPERS employed 21 full-time employees as of June 30, 2024. Thirteen former MPERS employees have retired.

Full-time employees are members of the System (see Note 8). For these employees, MPERS accrued 58.00% of payroll during fiscal year 2024, amounting to $1,728,032. The amounts for fiscal year 2024 and the four preceding years are shown below. These amounts are recorded as both a contribution and administrative expense. Information regarding the retirement plans can be found in Notes 2 and 5.

Net Obligations

Year Ended June 30	Annual Contribution Accrual Percent	Annual Contribution Accrual Dollars
2020	58.00%	$ 987,743
2021	58.00	1,219,468
2022	58.00	1,374,954
2023	58.00	1,506,656
2024	58.00	1,728,032

NOTE 10 – OTHER POST-EMPLOYMENT BENEFITS (OPEB)

In addition to the retirement benefits described previously, MPERS provides a portion of health care insurance through the MoDOT and MSHP Medical and Life Insurance Plan (Insurance Plan) in accordance with Missouri State statutes. The Insurance Plan is considered an agent multiple employer defined benefit plan and is administered by MoDOT. The Insurance Plan is financed on a pay-as-you-go basis and is an internal service fund of MoDOT. As of June 30, 2024, there were 9 inactive (retired) members and 21 active employees participating in the Insurance Plan.

Medical insurance benefits are established by the Insurance Plan's Board of Trustees and are approved by the Missouri Highways and Transportation Commission. Benefits include general inpatient and outpatient medical services; mental, nervous and substance abuse care; and prescriptions. Eligible members are employees who retired from the System with a minimum of 5 years of service and who participate in the Insurance Plan. MoDOT issues a publicly available financial report that includes financial statements and required supplementary information for the Insurance Plan. Requests for this report should be addressed to MoDOT, Financial Services Division, P.O. Box 270, Jefferson City, MO 65102.

Employer and member contributions are established by the Insurance Plan's Board of Trustees and are approved by the Missouri Highways and Transportation Commission. Premiums vary by coverage categories, which include retirees, certain disabled employees, spouses, certain dependents, and survivors of deceased employees and retirees.

Changes in Total OPEB Liability

MPERS' proportionate share (0.15%) of the Insurance Plan's net OPEB liability is $837,636 which was measured as of July 1, 2023, and the total OPEB liability used to calculate the net OPEB liability was determined by an actuarial valuation as of that date.

Summary of Changes in Net OPEB Liability for the Year Ended June 30, 2024

	Total
Beginning Balance	$ 1,929,126
Changes for the year:	
Service Cost	53,828
Interest Cost	69,719
Changes of benefit terms	0
Differences between expected and actual experience	(37,641)
Changes in assumptions	(1,150,169)
Benefit Payments	(27,227)
Net Changes	(1,091,490)
Ending Balance	$ 837,636

Deferred Outflows and Inflows

For the year ended June 30, 2024, MPERS recognized net OPEB expense of $94,237 MPERS reported deferred outflows of resources and deferred inflows of resources related to OPEB from the following sources:

Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB

	Deferred Outflows	Deferred Inflows
Differences between expected and actual experience	$ 129,657	$ 40,590
Changes of assumptions or other inputs	135,933	1,317,161
Contributions subsequent to measurement date	23,137	0
Total	**$ 288,727**	**$1,357,751**

Deferred outflows resulting from contributions subsequent to the measurement date will be recognized as a change to the net pension liability in each subsequent year. Other deferred amounts related to OPEB will be recognized in expenses as follows:

Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB

Fiscal Year	
2025	$ (199,936)
2026	(187,092)
2027	(246,748)
2028	(282,335)
2029	(176,050)
	$(1,092,161)

Actuarial Assumptions

The following actuarial assumptions and other inputs, applied to all periods included in the measurement:

Cost method	Entry Age Normal based upon salary
Salary increases	3.00%
Discount rate	3.65%
Investment rate of return	N/A; the plan is unfunded
Health care cost trend rates	7.82%, decreasing to 4.44% in 2033
Retirees' share of benefit-related costs	43.03% - 90%
Admin Expense Trend (Inflation) Rate	3.00%

- The salary increases were based on projected salaries, which include COLAs, provided by MoDOT.
- The discount rate was based on Bond Buyer General Obligation 20-Bond Municipal Bond Index.
- Mortality rates were based on Pub-2010 Public Retirement Plans Safety Employees Mortality Table weighted by Headcount projected by MP-2021.
- The actuarial assumptions used in the June 30, 2024 valuation were based on the results of an actuarial experience study for the period July 1, 2022-June 30, 2023.
- It is assumed the current employer and member contributions will continue as approved by the Commission.
- Changes of assumptions and other inputs reflect a change in the discount rate from 3.54% in 2023 to 3.465% in 2024.

The following table illustrates the impact of interest rate sensitivity on the Net OPEB Liability as of June 30, 2024:

Interest Rate Sensitivity

	1% Decrease	Current Discount Rate	1% Increase
Net OPEB Liability	$961,780	$837,636	$736,199

The following table illustrates the impact of healthcare cost trend sensitivity on the Net OPEB Liability as of June 30, 2024:

Healthcare Cost Trend Sensitivity

	1% Decrease	Current Discount Rate	1% Increase
Net OPEB Liability	$722,053	$837,636	$981,073

NOTE 11 – CAPITAL ASSETS

Capital Asset Account Balances

	Land	Building	Furniture and Equipment	Software	Total Capital Assets
Cost					
Balances as of June 30, 2023	$ 188,319	$ 745,828	$ 157,693	$3,288,161	$4,380,001
Additions	0	0	23,883	0	23,883
Disposals	0	0	0	0	0
Balances as of June 30, 2024	**$ 188,319**	**$ 745,828**	**$ 181,576**	**$3,288,161**	**$4,403,884**
Accumulated Depreciation					
Balances as of June 30, 2023	$ 0	$ 408,385	$ 147,017	$3,288,161	$3,843,563
Additions	0	30,383	3,580	0	33,963
Disposals	0	0	0	0	0
Balances as of June 30, 2024	**$ 0**	**$ 438,768**	**$ 150,597**	**$3,288,161**	**$3,877,526**
Net Capital Assets as of June 30, 2024	**$ 188,319**	**$ 307,060**	**$ 30,979**	**$ 0**	**$ 526,358**

NOTE 12 – LINE OF CREDIT AND LEVERAGE

In December 2022, MPERS entered into a revolving credit agreement with Bank of America, N.A. consisting of a line of credit not to exceed $200 million. Under the terms of the credit agreement, each revolving loan shall bear interest on the outstanding principal amount thereof at a rate per annum equal to the Base Rate (fluctuating rate of interest per annum equal to the highest of (a) the Federal Funds Rate plus 0.50%, (b) the rate of interest in effect for such day as publicly announced from time to time by Bank of America as its “prime rate,” and (c) the Daily SOFR Rate plus 1.00%) plus the applicable spread (a rate per annum equal to (a) in the case of Base Rate Loans, 0.00% and (b) in the case of Daily SOFR Rate Loans, 1.20%). MPERS leverage ratio at June 30, 2024, was approximately 3.4%. The bank line of credit at June 30, 2024 was zero. The credit agreement contains covenants customary for financings of this type, including, but not limited to, financial covenants, which requires that MPERS Fair Value-Total Fund Investment Assets shall not be less than $1.5 billion at any time and MPERS Funded Ratio shall not be less than 50% at any time. MPERS was in compliance with these financial covenants at June 30, 2024.

NOTE 13 – COMMITMENTS

MPERS has committed $1,985,751,302 of which $1,274,193,416 has been invested, leaving total unfunded commitments to private equity, real estate, real assets, and opportunistic debt of $711,557,886 as of June 30, 2024. The total unfunded investment commitments are not recorded in the accompanying Statement of Fiduciary Net Position.

NOTE 14 – RISK MANAGEMENT

MPERS is exposed to various risks of loss related to natural disasters, asset theft or damage, errors and omissions, torts, and employee injuries.

MPERS has purchased commercial insurance related to capital asset loss and damage. Ancillary coverage provided through the property policy includes coverage for accounts receivable, loss of money and securities, employee dishonesty, and forgery and alterations. MPERS carries a $2 million umbrella liability policy. MPERS has coverage through Missouri Highway and Transportation Commission’s Self-Insurance Fund related to workers’ compensation. MPERS has also purchased a directors and officers liability policy with $1 million aggregate coverage. This coverage is inclusive of legal defense costs and carries a $100,000 deductible. The State’s Legal Expense Fund covers all state employees and officers, and MPERS has purchased surety bonds for the executive director and staff. Settlements have not exceeded coverages for each of the past three fiscal years.

MPERS has a disaster recovery plan that provides for continued computer operations at a remote location should the retirement office be unavailable for normal computing operations.

Schedule of Changes in the Employers' Net Pension Liability
Year Ended June 30

	2024	2023	2022	2021	2020
Total Pension Liability					
Service Cost [1]	$ 57,997,597	$ 52,759,573	$ 55,097,433	$ 43,726,886	$ 44,048,083
Interest on the Total Pension Liability	298,242,729	279,014,877	275,067,181	278,522,994	274,791,358
Benefit Changes	0	0	0	0	0
Difference Between Expected and Actual Experience	197,772,783	211,609,428	16,085,222	(26,471,689)	3,494,582
Assumption Change	0	44,379,018	0	226,319,675	0
Benefit Payments [2]	(299,084,308)	(288,084,295)	(278,612,715)	(266,108,191)	(262,710,811)
Refunds	(996,748)	(972,241)	(1,024,986)	(611,132)	(796,107)
Disability Premiums [2]	0	0	0	(1,600,628)	(1,640,971)
Transfers to Other Retirement Systems [2]	0	0	0	(1,802,900)	(2,457,945)
Net Change in Total Pension Liability	**253,932,053**	**298,706,360**	**66,612,135**	**251,975,015**	**54,728,189**
Total Pension Liability – Beginning	**4,709,391,407**	**4,410,685,047**	**4,344,072,912**	**4,092,097,897**	**4,037,369,708**
Total Pension Liability – Ending (a)	**$ 4,963,323,460**	**$ 4,709,391,407**	**$ 4,410,685,047**	**$ 4,344,072,912**	**$ 4,092,097,897**
Plan Fiduciary Net Position					
Contributions – Employer	$ 254,358,101	$ 232,813,995	$ 212,711,117	$ 208,212,848	$ 210,871,852
Contributions – Employee [3]	15,882,070	11,448,174	12,655,780	7,095,963	6,547,351
Pension Plan Net Investment Income	432,121,499	264,758,383	122,767,680	699,644,536	(10,667,857)
Benefit Payments [2]	(299,084,308)	(288,084,295)	(278,612,715)	(266,108,191)	(262,710,811)
Refunds	(996,748)	(972,241)	(1,024,986)	(611,132)	(796,107)
Disability Premiums [2]	0	0	0	(1,600,628)	(1,640,971)
Pension Plan Administrative Expense	(6,250,951)	(5,529,258)	(5,229,018)	(4,585,473)	(4,291,028)
Net Transfers [1] [2]	0	0	0	277,417	1,025,629
Net Change in Plan Fiduciary Net Position	**396,029,663**	**214,434,758**	**63,267,858**	**642,325,340**	**(61,661,942)**
Plan Fiduciary Net Position – Beginning	**3,281,627,844**	**3,067,193,086**	**3,003,925,228**	**2,361,599,888**	**2,423,261,830**
Plan Fiduciary Net Position – Ending (b)	**$ 3,677,657,507**	**$ 3,281,627,844**	**$ 3,067,193,086**	**$ 3,003,925,228**	**$ 2,361,599,888**
Adjustment – GASB 75 Implementation					
Plan Fiduciary Net Position – Ending (as restated)					
Employers' Net Pension Liability (a) – (b)	**$ 1,285,665,953**	**$ 1,427,763,563**	**$ 1,343,491,961**	**$ 1,340,147,684**	**$ 1,730,498,009**
Plan Fiduciary Net Position as a % of Total Pension Liability	74.10%	69.68%	69.54%	69.15%	57.71%
Covered Payroll	$ 438,993,763	$ 400,799,485	$ 367,493,332	$ 359,409,940	$ 363,980,262
Employers' Net Pension Liability as a % of Covered Payroll	292.87%	356.23%	365.58%	372.87%	475.44%

Continued on next page.

(1) Starting fiscal year 2022, Service Cost includes disability expense, service purchases, and transfers from other systems.
(2) Starting fiscal year 2022, Benefit Payments includes disability premiums and transfers to other systems.
(3) Starting fiscal year 2022, Contributions – Employee includes service purchases and transfers from other systems.

Schedule of Changes in the Employers' Net Pension Liability
Year Ended June 30 (continued)

	2019	2018	2017	2016	2015
Total Pension Liability					
Service Cost	$ 43,971,030	$ 46,621,377	$ 45,713,403	$ 45,441,305	$ 45,358,095
Interest on the Total Pension Liability	271,174,089	286,457,436	283,568,441	280,432,068	275,284,910
Benefit Changes	0	(7,684)	0	0	0
Difference Between Expected and Actual Experience	203,459	(37,173,164)	(37,286,966)	(39,810,009)	(13,324,219)
Assumption Change	0	142,556,109	0	0	0
Benefit Payments	(255,310,406)	(254,131,209)	(246,617,775)	(236,488,629)	(236,905,323)
Refunds	(780,538)	(503,007)	(321,328)	(198,106)	(107,395)
Disability Premiums	(1,615,860)	(1,601,605)	(1,620,418)	(1,567,825)	(1,554,676)
Transfers to Other Retirement Systems	(2,111,007)	(2,823,042)	(2,724,631)	(1,921,451)	(3,147,482)
Net Change in Total Pension Liability	**55,530,767**	**179,395,211**	**40,710,726**	**45,887,353**	**65,603,910**
Total Pension Liability – Beginning	**3,981,838,941**	**3,802,443,730**	**3,761,733,004**	**3,715,845,651**	**3,650,241,741**
Total Pension Liability – Ending (a)	**$ 4,037,369,708**	**$ 3,981,838,941**	**$ 3,802,443,730**	**$ 3,761,733,004**	**$ 3,715,845,651**
Plan Fiduciary Net Position					
Contributions – Employer	$ 210,166,927	$ 204,955,180	$ 206,562,924	$ 199,609,396	$ 200,638,571
Contributions – Employee	5,996,344	5,001,418	4,891,932	3,482,513	3,294,162
Pension Plan Net Investment Income	154,326,818	197,619,838	220,301,741	21,432,095	92,645,571
Benefit Payments	(255,310,406)	(254,131,209)	(246,617,775)	(236,488,629)	(236,905,323)
Refunds	(780,538)	(503,007)	(321,328)	(198,106)	(107,395)
Disability Premiums	(1,615,860)	(1,601,605)	(1,620,418)	(1,567,825)	(1,554,676)
Pension Plan Administrative Expense	(4,372,966)	(4,693,492)	(4,515,458)	(4,370,860)	(4,066,944)
Net Transfers	321,363	(955,597)	(980,524)	808,228	(2,033,045)
Net Change in Plan Fiduciary Net Position	**108,731,682**	**145,691,526**	**177,701,094**	**(17,293,188)**	**51,910,921**
Plan Fiduciary Net Position – Beginning	**2,314,530,148**	**2,168,838,622**	**1,992,073,946**	**2,009,367,134**	**1,957,456,213**
Plan Fiduciary Net Position – Ending (b)	**$ 2,423,261,830**	**$ 2,314,530,148**	**$ 2,169,775,040**	**$ 1,992,073,946**	**$ 2,009,367,134**
Adjustment – GASB 75 Implementation			(936,418)		
Plan Fiduciary Net Position – Ending (as restated)			**2,168,838,622**		
Employers' Net Pension Liability (a) – (b)	**$ 1,614,107,878**	**$ 1,667,308,793**	**$ 1,633,605,108**	**$ 1,769,659,058**	**$ 1,706,478,517**
Plan Fiduciary Net Position as a % of Total Pension Liability	60.02%	58.13%	57.06%	52.96%	54.08%
Covered Payroll	$ 362,747,630	$ 353,751,292	$ 356,515,416	$ 342,264,593	$ 342,264,593
Employers' Net Pension Liability as a % of	444.97%	471.32%	457.95%	517.04%	498.58%

Schedule of Employers' Contributions
Last 10 Fiscal Years

	Actuarially Determined Contributions	Actual Contributions	Contribution Deficiency (Excess)	Covered Payroll*	Contributions as a Percentage of Covered Payroll
2015	$200,638,571	$200,638,571	$0	$342,211,446	58.63%
2016	199,609,396	199,609,396	0	344,154,131	58.00
2017	206,562,924	206,562,924	0	356,142,972	58.00
2018	204,955,180	204,955,180	0	353,371,000	58.00
2019	210,166,927	210,166,927	0	362,356,771	58.00
2020	210,871,852	210,871,852	0	363,572,159	58.00
2021	208,212,848	208,212,848	0	358,987,669	58.00
2022	212,711,117	212,711,117	0	366,743,305	58.00
2023	232,813,995	232,813,995	0	400,285,401	58.16
2024	254,358,101	254,358,101	0	438,548,450	58.00

**Values are estimated from contribution rate and actual contribution amount.*

Schedule of Investment Returns
Last 10 Fiscal Years

Fiscal Year Ended June 30	Annual Money-Weighted Rate of Return
2015	6.62%
2016	1.02%
2017	11.22%
2018	9.20%
2019	6.84%
2020	(0.44)%
2021	30.79%
2022	4.00%
2023	8.87%
2024	13.36%

Notes to Required Supplementary Information

The information presented in the required supplementary schedules was determined as part of the actuarial valuation at the dates indicated. Additional information as of the latest actuarial valuation follows:

Valuation Date	June 30, 2024
Actuarial Cost Method	Entry Age
Amortized Method	Closed, Level Percent of Payroll
Remaining Amortization Period	15 years
Asset Valuation Method	3-Year Smoothed Fair Value: 20% Corridor
Inflation	2.25% (price inflation)
Actuarial Assumptions:	
Investment Rate of Return	6.50%
Projected Salary Increase	3.00% to 10.50% (includes 3.00% wage inflation)
Cost-of-Living Adjustments	1.80% Compound

Other Post-Employment Benefits (OPEB) Plan
Schedule of Changes in Net OPEB Liability and Related Ratios for MoDOT and MSHP Medical and Life Insurance Plan

	2024	2023	2022	2021	2020
Total OPEB Liability					
Service Cost	$ 53,828	$ 81,825	$ 74,581	$ 51,302	$ 64,136
Interest Cost	69,719	52,551	45,896	55,700	61,346
Changes of Benefit Terms	0	0	0	0	0
Differences Between Expected and Actual Experience	(37,641)	(8,837)	263,007	452	(17,475)
Changes in Assumptions	(1,150,169)	(530,806)	(368)	393,621	(58,897)
Benefit Payments	(27,227)	(33,227)	(35,099)	(33,865)	(35,159)
Net Change in Total OPEB Liability	(1,091,490)	(438,494)	348,017	467,210	13,951
Total OPEB Liability (Beginning)	**1,929,126**	**2,367,620**	**2,019,603**	**1,552,393**	**1,538,442**
Total OPEB Liability (Ending)	**$ 837,636**	**$ 1,929,126**	**$ 2,367,620**	**$ 2,019,603**	**$ 1,552,393**
Plan Fiduciary Net Position					
Contributions	$ 27,227	$ 33,227	$ 35,099	$ 33,865	$ 35,159
Benefit Payments	(27,227)	(33,227)	(35,099)	(33,865)	(35,159)
Net Change in Plan Fiduciary Net Position	**0**	**0**	**0**	**0**	**0**
Plan Fiduciary Net Position (Beginning)	**0**	**0**	**0**	**0**	**0**
Plan Fiduciary Net Position (Ending)	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**
Net OPEB Liability (Ending)	$ 837,636	$ 1,929,126	$ 2,367,620	$ 2,019,603	$ 1,552,393
Net Position as a Percentage of OPEB Liability	N/A	N/A	N/A	N/A	N/A
Covered-Employee Payroll	$ 2,236,049	$ 2,016,099	$ 1,889,323	$ 1,791,020	$ 1,760,722
Net OPEB Liability as a Percentage of Payroll	37.46%	95.69%	125.32%	112.76%	88.17%

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Notes:

The Insurance Plan is financed on a pay-as-you-go basis and is an internal service fund of MoDOT.

These schedules are intended to present information for 10 years but may be built prospectively. Additional years will be displayed as they become available.

Other Post-Employment Benefits (OPEB) Plan
Schedule of Changes in Net OPEB Liability and Related Ratios for MoDOT and MSHP Medical and Life Insurance Plan (Continued)

	2019	2018
Total OPEB Liability		
Service Cost	$ 66,676	$ 81,000
Interest Cost	54,714	49,929
Changes of Benefit Terms	0	0
Differences Between Expected and Actual Experience	(12,565)	0
Changes in Assumptions	(81,559)	(238,129)
Benefit Payments	(34,004)	(37,055)
Net Change in Total OPEB Liability	(6,738)	(144,255)
Total OPEB Liability (Beginning)	**1,545,180**	**1,689,435**
Total OPEB Liability (Ending)	**$ 1,538,442**	**$ 1,545,180**
Plan Fiduciary Net Position		
Contributions	$ 34,004	$ 37,055
Benefit Payments	(34,004)	(37,055)
Net Change in Plan Fiduciary Net Position	**0**	**0**
Plan Fiduciary Net Position (Beginning)	**0**	**0**
Plan Fiduciary Net Position (Ending)	**$ 0**	**$ 0**
Net OPEB Liability (Ending)	$ 1,538,442	$ 1,545,180
Net Position as a Percentage of OPEB Liability	N/A	N/A
Covered-Employee Payroll	$ 1,639,523	$ 790,000
Net OPEB Liability as a Percentage of Payroll	93.83%	195.59%

Other Post-Employment Benefits (OPEB) Plan
Schedule of MPERS' Proportionate Share of Net OPEB Liability for MoDOT and MSHP Medical and Life Insurance Plan

Year Ended June 30	Proportion of Net OPEB Liability	Proportionate Share of Net OPEB Liability	Covered Employee Payroll	Net OPEB Liability as % of Covered Employee Payroll	Net Position as % of Total OPEB Liability
2018	0.14%	$1,545,180	$ 790,000	195.59%	N/A
2019	0.14%	1,538,442	1,639,523	93.83%	N/A
2020	0.15%	1,552,393	1,760,722	88.17%	N/A
2021	0.15%	2,019,603	1,791,020	112.76%	N/A
2022	0.17%	2,367,620	1,889,323	125.32%	N/A
2023	0.17%	1,929,126	2,016,099	95.69%	N/A
2024	0.15%	837,636	2,236,049	37.46%	N/A

Notes:

The Insurance Plan is financed on a pay-as-you-go basis and is an internal service fund of MoDOT.

These schedules are intended to present information for 10 years but may be built prospectively. Additional years will be displayed as they become available.

Schedule of Administrative Expenses
For the Year Ended June 30, 2024

Personnel Services	
Salary Expense	$3,115,521
Employee Benefit Expense	2,056,854
Total Personnel Services	**5,172,375**
Professional Services	
Actuarial Services	95,883
Audit Services	62,700
Legislative Consultant	31,200
Investment Special Consulting	25,000
Insurance Consultant	7,650
Other Consultant Fees	4,708
Fiduciary Insurance	24,071
IT Hosting and Support	336,242
Other	33,730
Total Professional Services	**621,184**
Miscellaneous	
Depreciation	33,963
Meetings / Travel / Education	106,042
Equipment / Supplies	107,525
Printing / Postage	29,760
Bank Service Charge	9,342
Building Expenses	55,083
Other	115,676
Total Miscellaneous	**457,391**
Total Administrative Expenses	**$6,250,950**

Schedule of Investment Expenses
For the Year Ended June 30, 2024

Investment Income Expenses	
Management and Performance Fees by Asset Class	
Equities	$ 2,443,193
Fixed Income Core	31,214
Opportunistic Debt	12,221,451
Real Estate	6,726,795
Private Equity	7,614,701
Real Assets	10,228,867
Hedge Funds	1,669,357
Total Management and Performance Fees	**$ 40,935,578**
Investment Custodial Fees	89,446
Performance Management	220,075
General Consultant (Monitoring) Fee	355,000
Professional Fees	546,036
Investment Interest Expense	2,142,248
Other Fees / Expenses (Refunds)	983,708
Total Investment Income Expenses	**$ 45,272,091**
Securities Lending Expenses	
Borrower Rebates (Refunds)	$ 1,071,119
Bank Fees	66,804
Total Securities Lending Expenses	**$ 1,137,923**

Schedule of Consultant and Professional Expenses
For the Year Ended June 30, 2024

Professional / Consultant	Nature of Service	
Gabriel, Roeder, Smith & Co.	Actuarial	$ 95,883
LexisNexis Risk Data Management	Death Audit Services	1,950
MO Dept. of Health & Senior Services	Death Audit Services	303
Pension Benefit Information	Death Audit Services	10,767
Cobalt Community Research	Customer service and benefit delivery	1,210
Assured Partners	Director's & Officer's Insurance	24,071
Williams-Keepers, LLC	Financial Audit Services	62,700
CBIZ Human Capital Services	Compensation Consulting	19,500
Midwest Computech	Information Technology	76,331
Huber & Associates	Information Technology	3,300
Levi, Ray & Shoup, Inc.	Information Technology	250,087
Sikich, LLP	Information Technology	6,524
Thompson Coburn, LLP	Legal Consulting	4,708
Michael G. Winter Consultants, LLC	Legislative Consulting	31,200
Evercore Group LLC	Market Research	25,000
Charlesworth Benefits	Risk Management Consulting	7,650
Total Consultant and Professional Expenses		**$ 621,184**

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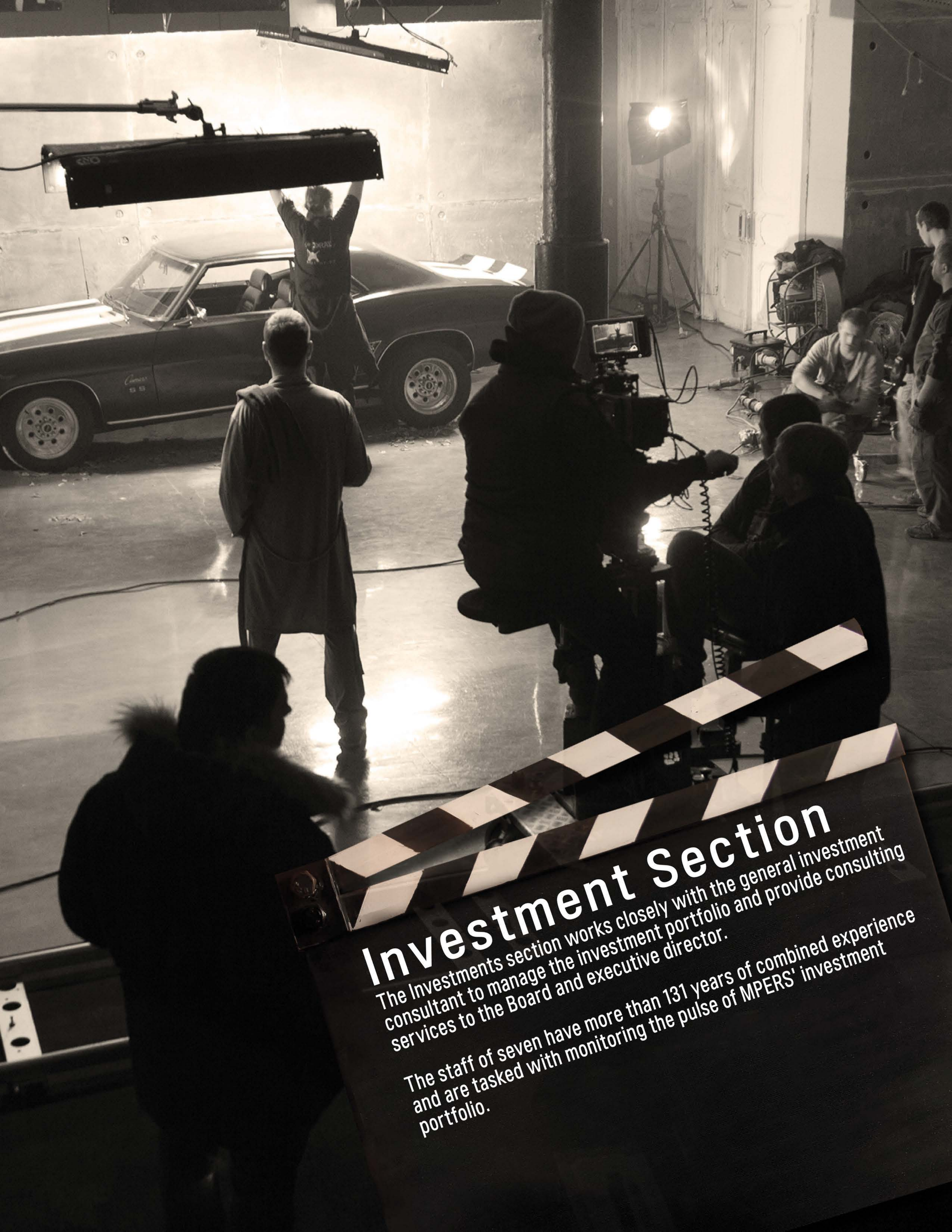

Investment Section

The Investments section works closely with the general investment consultant to manage the investment portfolio and provide consulting services to the Board and executive director.

The staff of seven have more than 131 years of combined experience and are tasked with monitoring the pulse of MPERS' investment portfolio.

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September 30, 2024

To the Board of Trustees and System Members:

It is my pleasure to provide the Investment Section of this year's Annual Comprehensive Financial Report (Annual Report). This letter offers an overview of investment performance during the past year and the staff's expectations for the investment markets in the years to come.

"Behind the Scenes" is the theme of this year's annual report, which is particularly appropriate for a defined benefit retirement system. Unlike a defined contribution plan (such as a 401(k) or a self-directed retirement plan), your retirement benefit is based on a formula that considers your compensation and years of service. As a member, you do not receive a statement showing your "retirement account balance" on any given date. Instead, you receive a promise from your employer that funds will be available to pay your defined benefit upon retirement. In this model, the employer, not the employee, assumes the investment risk to ensure that this promised benefit is available when the time comes for you to retire. Consequently, many of the detailed nuances of MPERS' retirement system are managed "behind the scenes," including setting an asset allocation that can earn a competitive return and implementing funding policies to ensure the sustainability of benefits for current and future members. This annual report provides extensive detail on these initiatives, but I am proud to report that the "behind the scenes" work initiated over 20 years ago has significantly enhanced the sustainability and financial health of MPERS.

When I joined MPERS in 2003, the investment portfolio was among the worst performing funds in the country. Thankfully, the Board of Trustees had the foresight to invest in dedicated investment staff, surround them with highly regarded consultants, and establish a governance model that enables the team to excel. Since then, we have completely overhauled the investment portfolio by employing alternative investment strategies to boost expected returns and manage risk. That behind-the-scenes work has paid off immensely; MPERS' 3-, 5-, and 10-year returns all rank in the top 1% of the public fund peer universe, while the 20-year return ranks in the top 2%.

Fiscal Year 2024 was another successful year, with MPERS achieving a return of 13.29%. This outperformed the policy benchmark of 12.29% (the hypothetical return from investing passively across the targeted asset allocation), the median public fund return of 11.4%, and the actuarial hurdle of 6.5% (the assumed rate of return necessary for determining the cost of the plan). This was another year where simpler was better in terms of asset allocation; global equities rose by 19%, while traditional fixed income increased by 2.7%. As a result, a traditional 60/40 mix of stocks and bonds generated a 12.7% return. Given that MPERS' portfolio typically lags behind peers and traditional 60/40 portfolios in such environments, we are very pleased with this year's overall results.

Beyond the stated returns, there are even more examples of the "behind the scenes" work at MPERS. Several years ago, the Board of Trustees undertook a strategic planning initiative which resulted in much-needed support to expand the investment staff. While MPERS has enjoyed strong performance over the past 20 years, we must continually strive to maintain that momentum. We now have three senior investment managers on the team, each with decades of institutional knowledge and management experience. Additionally, we have built a solid bench of support personnel, ensuring continuity in senior management in the event of turnover.

Last but not least, the theme of “behind the scenes” would not be complete without addressing the progress made in MPERS’ funding status. The combination of strong performance and aggressive funding has pushed MPERS’ funding status above 70% for the first time in history. This improved financial health will provide our covered employers with meaningful contribution rate relief and greatly enhance the sustainability of MPERS’ benefits for years to come.

As always, I thank you for the opportunity to serve as your Chief Investment Officer, and I hope you enjoy this year’s annual report.

Sincerely,

Larry Krummen, CFA
Chief Investment Officer

Kevin M. Leonard
Partner

NEPC LLC
255 State Street
Boston, MA 02109

September 4, 2024

The Board of Trustees
MoDOT & Patrol Employees' Retirement System
PO Box 1930
Jefferson City, MO 65102

RE: 2024 Annual ACFR Letter

Dear Board Members:

In our role as the general investment consultant, we assist the Board in several manners: determining and executing the overall asset allocation strategy of the Plan; advising on the investment policy of the Plan; facilitating investment manager searches (both traditional and alternative asset classes); conducting custodial service searches; providing ongoing performance evaluation for each individual investment manager and the overall investment portfolio; as well as providing pertinent education to the Board.

MPERS' objective is to provide service, disability, death and vested retirement benefits to members and their beneficiaries. To ensure a solid foundation for the future of the System, MPERS has developed an investment program designed to achieve the actuarially assumed rate of return over the long term, while prudently managing the risk of the portfolio. The pension plan is required to satisfy the need to pay accumulated/earned retirement benefits today, while at the same time be prepared for "uncertain" future benefits. This balancing of short-term versus long-term needs is a key tenant in the overall construction of the portfolio. To facilitate this balance, the Board has adopted a diversified asset allocation structure. Our goal is to diversify the System's assets within the traditional and non-traditional asset classes to reduce volatility, achieve above market returns, and to better protect the portfolio against difficult market conditions.

MPERS Fiscal Year 2024 Performance and Key Initiatives

For the fiscal-year-ending June 30, 2024, the MPERS Total Plan returned +13.3% on a net-of-fees basis, outperforming the policy index return of 12.3%. For the fiscal-year-ending June 30, 2024, relative to the peer group comparison (InvMetrics Public DB Net Universe), MPERS ranked in the 20th percentile (1st percentile being the highest, 100th percentile being the lowest). For the fiscal year, total Plan outperformance (relative to policy index) was driven by relative outperformance in the public equities, traditional fixed income, opportunistic debt, real assets, and the real estate portfolios. The only portfolio to underperform its respective benchmark was the private equity portfolio with a return of 8.16%.

During Fiscal Year 2024, key initiatives accomplished included:

Conducted a comprehensive/formal review of the Plan's asset allocation in concert with NEPC's 2024 Client Actions and Asset Class Assumptions.

- ◦ As part of the review, NEPC and Staff evaluated the Plan's existing asset allocation and discussed any potential changes to its current structure.
    - ▪ Based on the review and discussions, no changes were recommended.

- A liquidity study was conducted as part of the asset allocation review.
    - ◦ The results of the liquidity study reaffirmed that the Plan's liquidity remains healthy enough to support the current allocation to alternative investments, but certain economic environments and developing trends may change the liquidity profile of the Plan.
- Continued to develop the alternative investment portfolio.
    - ◦ A private market pacing plan was conducted for the opportunistic debt, private equity, real assets, and real estate portfolios. Each pacing plan provided a recommended commitment amount for upcoming vintage years.
    - ◦ New commitments were made to the private equity, opportunistic debt, and real estate portfolios.

As the asset allocation strategy evolves year-after-year, diversification and risk mitigation will continue to be the pillars of MPERS' asset allocation structure.

NEPC, LLC appreciates the opportunity to serve as your consultant. It is a pleasure to work with MPERS and we look forward to continuing our relationship for the benefit of the Board, Staff, and most importantly, the members of the System.

Best Regards,

Kevin M. Leonard, Partner

Summary of Investment Policy

The primary objective of the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (MPERS, Plan, or System) is to provide active and retired employees with the retirement benefits provided under Missouri law. The investment portfolio is constructed to generate a total return that, when combined with employer contributions, is sufficient to meet these benefit obligations. Following prudent standards for preservation of capital, the goal is to achieve the highest possible rate of return consistent with the Plan's tolerance for risk as determined by the Board of Trustees (Board) in its role as fiduciary. The Board has adopted the following guiding principles to fulfill its fiduciary duty:

1. Preserve the long-term corpus of the fund.
2. Maximize total return within prudent risk parameters.
3. Act in the exclusive interest of the members of the System.

Risk awareness and risk management are essential to any organization. MPERS' *Investment Policy* is the starting point for our investment risk management process. Through the *Investment Policy*, the Board has defined the desired goals and outcomes of the investment program, including provisions that:

- define the assumed rate of return for the portfolio (currently 6.5%);
- establish an asset allocation expected to meet the assumed rate of return while minimizing the volatility of the fund's contribution rates;
- define the approved asset classes and investment strategies;
- delegate the day-to-day management of the investment portfolio to MPERS' staff, consultants, and external asset managers;
- establish a range of asset class allocations from which the CIO can operate;
- establish procedures for hiring and terminating investment managers; and
- establish ongoing due diligence requirements for existing managers.

Throughout the *Investment Policy*, two key investment beliefs dominate the daily management of the investment portfolio.

1. Diversification is critical because the future is unknown.
2. Flexibility in investment policy implementation is critical because particular asset classes will be in or out of favor at various points in the economic cycle.

To ensure the fund is operating within the risk parameters established in the *Investment Policy*, staff monitor the performance of the fund relative to MPERS' policy index. The policy index is the return that would be generated if MPERS' portfolio was invested passively across the targeted asset allocation. MPERS' investment staff strive to achieve returns that are equal to or greater than the policy index while taking equal or less risk relative to the policy index (with risk defined by standard deviation of return). The following table shows how MPERS' portfolio compares to both the policy index and the median fund in MPERS' public fund peer universe as well as to commonly used risk measures.

Total Portfolio – Statistical Performance **Portfolio Characteristic**	**1-Year**	**3-Year**	**5-Year**	**10-Year**	**20-Year**
Annualized Total Plan Return (net of all fees and expenses)	**13.29%**	**8.64%**	**10.79%**	**8.86%**	**8.24%**
Annualized Policy Benchmark Return	*12.29%*	*4.56%*	*7.99%*	*7.41%*	*7.40%*
Annualized Peer Median Return	*11.39%*	*2.82%*	*7.35%*	*6.63%*	*6.83%*
Total Plan Standard Deviation (1)	**6.46**	**7.48**	**7.15**	**5.91**	**7.27**
Policy Benchmark Standard Deviation	*7.25*	*8.67*	*8.77*	*6.83*	*7.29*
Peer Median Standard Deviation	*10.57*	*12.13*	*11.89*	*10.02*	*9.55*
Total Plan Sharpe Ratio (2)	**1.15**	**0.78**	**1.11**	**1.21**	**0.96**
Policy Benchmark Sharpe Ratio	*0.91*	*0.21*	*0.68*	*0.86*	*0.85*
Peer Median Sharpe Ratio	*0.58*	*0.04*	*0.47*	*0.55*	*0.59*
Correlation to Policy Benchmark (3)	**0.91**	**0.92**	**0.88**	**0.85**	**0.87**

(1) *Standard Deviation* measures historical volatility and specifically measures the dispersion of a set of data points (i.e., monthly returns from the mean). If the data points are further from the mean, the standard deviation is higher.

(2) *Sharpe Ratio* measures historical volatility and specifically measures the dispersion of a set of data points (i.e., monthly returns from the mean). If the data points are further from the mean, the standard deviation is higher.

(3) *Correlation* measures how the System's portfolio and the policy benchmark returns are related and if both have reacted to market forces in the same manner. The System's portfolio has a correlation of less than 1, indicating that while it will typically move in the same direction as the policy benchmark, it will not move in lockstep with the policy benchmark.

When evaluating these results, it is important to note that MPERS' policy index is comprised of a mix of asset classes, including several alternative asset classes, with benchmarks that are not investable (private equity with its S&P 500 + 3% illiquidity benchmark, real assets with its CPI + 4% real return benchmark, and the real estate benchmark). Notably, MPERS' targeted asset allocation has generated a 20-year policy benchmark return that ranks in the top 2% of the peer universe. It is also important to note that MPERS calculates actual performance on a net-of-fees basis, while acknowledging that most asset class benchmarks report performance on a gross-of-fees basis. These investment management fees alone are a significant hurdle for staff to overcome. Couple these fees with a policy index that rates favorably with the broader public fund peer universe and one can see how well MPERS investment policy has served stakeholders of the System. Furthermore, MPERS' strong risk-adjusted performance illustrates the Board is fulfilling its fiduciary duty by adopting a prudent investment strategy, and MPERS' staff has done an excellent job of adding value over a very challenging policy benchmark.

Fair Value of Investments

As of June 30, 2024, MPERS' investment portfolio had a total fair value of $3.668 billion, representing a net increase of $393 million from Fiscal Year 2023. Over the course of the year, $38 million was transferred out of the fund to pay benefit payments and meet other obligations. When viewed together, the net increase to the portfolio from investment activity equaled $431 million.

Investment Performance

MPERS' investment portfolio generated an 13.29% return for Fiscal Year 2024, net of all investment fees and based on time-weighted rates of return and market valuations. The performance across the major asset classes (and respective benchmarks) is listed below.

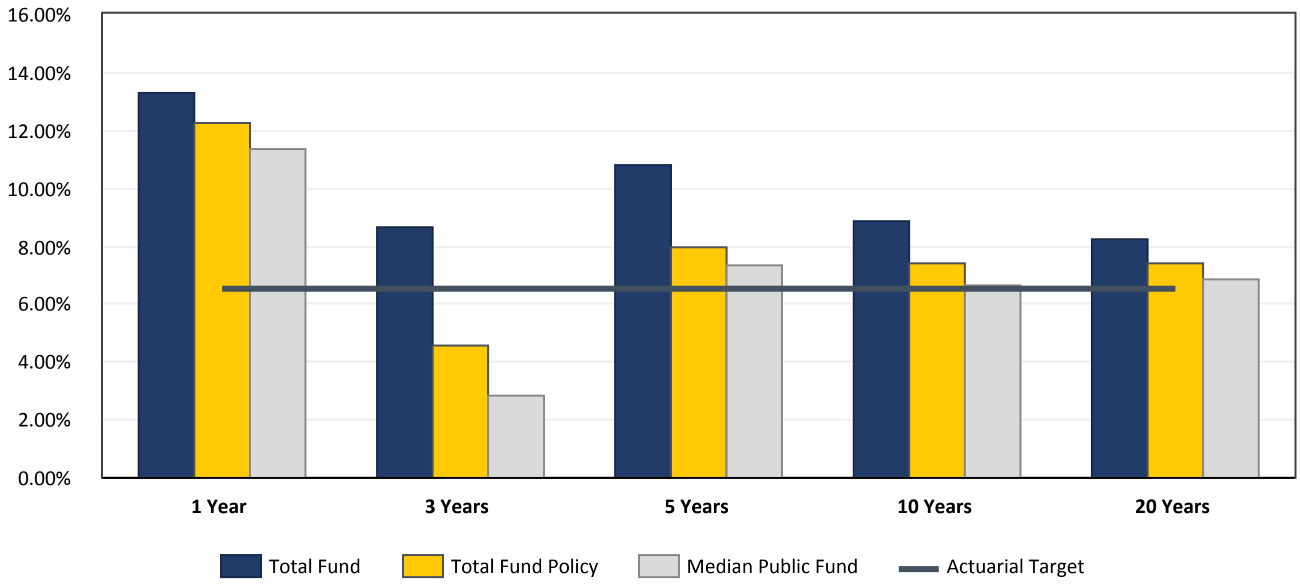
Investment Performance (Including Benchmarks)	1-Year	3-Year	5-Year	10-Year	20-Year
Total Fund	**13.29%**	**8.64%**	**10.79%**	**8.86%**	**8.24%**
Policy Benchmark	*12.29*	*4.56*	*7.99*	*7.41*	*7.40*
Peer Universe Ranking %	*20.00*	*1.00*	*1.00*	*1.00*	*2.00*
Equity Beta	**18.28**	**9.14**	**13.74**	**N/A**	**N/A**
*Equity Beta Benchmark**	*22.24*	*7.31*	*12.30*	*N/A*	*N/A*
Public Equity	**22.15**	**8.53**	**12.49**	**N/A**	**N/A**
MSCI ACWI	*19.38*	*5.43*	*10.76*	*N/A*	*N/A*
Private Equity	**8.15**	**9.64**	**15.71**	**14.05**	**N/A**
S&P 500 + 3%	*33.69*	*14.81*	*18.47*	*16.32*	*N/A*
Rates and Credit Beta	**8.67**	**4.33**	**5.72**	**N/A**	**N/A**
*Rates and Credit Beta Benchmark**	*4.67*	*-1.92*	*0.93*	**N/A**	**N/A**
Traditional Fixed Income	**7.19**	**0.53**	**2.72**	**4.13**	**5.11**
Barclays US AGG Gov/Credit	*2.74*	*-3.11*	*-0.07*	*1.51*	*3.21*
Opportunistic Debt	**11.70**	**10.33**	**10.20**	**N/A**	**N/A**
Barclays US Corp HY	*10.44*	*1.64*	*3.92*	*N/A*	*N/A*
Real Asset Beta	**9.12**	**14.11**	**9.94**	**N/A**	**N/A**
*Real Asset Beta Benchmark**	*-2.63*	*5.98*	*5.65*	*6.53*	*N/A*
Real Estate	**2.59**	**9.24**	**8.82**	**9.49**	**8.01**
NFI-ODCE	*-12.33*	*2.81*	*2.98*	*6.15*	*5.98*
Real Assets	**14.31**	**17.59**	**10.61**	**7.25**	**N/A**
CPI + 4%	*7.08*	*9.14*	*8.32*	*6.90*	*N/A*

**Calculated based on the policy weights for each beta group and its benchmark return.*

Note: All of MPERS' investment returns are reported net of all investment fees.

When evaluating performance, the Board of Trustees considers three primary performance objectives: 1) meet or exceed the actuarial assumed rate of return of 6.5% over long periods of time, 2) outperform a policy benchmark that represents the return that could be achieved by investing passively in the broad markets in the same percentages to MPERS' target asset allocation, and 3) rank at or above the public fund peer group's median investment return.

Historical returns compared to the three primary performance goals are listed graphically below:



Investment results for Fiscal Year 2024 were successful across all three performance goals; the fund exceeded the actuarial assumed rate of return, outperformed the policy benchmark return, and ranked consistent with the one-year peer group return and at the top of its peer group on a long-term basis. While a review of annual returns is an important exercise, MPERS' assets and liabilities are of a long-term nature so reviewing performance over longer periods is more critical and informative. With that in mind, MPERS' long-term investment results are extremely strong relative to the System's performance goals. Fiscal Year 2024 marks the second year MPERS can add a 20-year (net-of-fees) return to its long-term reporting package. The 20-year return of 8.24% exceeds the actuarial assumed rate of return over that period, ranks in the top 2% of the peer group and exceeds the policy benchmark return by 0.84% on an annualized basis. More subtly, but still important, is MPERS' policy benchmark 20-year return ranks in the top 12% of the peer group, which suggests that MPERS' Board established high expectations for investment results and MPERS' staff has exceeded those high expectations. Collectively, the 3-, 5-, 10-, and 20-year performance results all lead to the same conclusion: MPERS' returns exceed the actuarial assumed rate, a very difficult policy benchmark, and rank among the top of MPERS' public fund peer group. These results suggest the investment process (including both oversight and implementation) is working to the benefit of the System's members and sponsors.

Reviewing Fiscal Year 2024 in more detail shows that diversification and implementation flexibility remain key to MPERS' successful investment efforts. The overall fund return of 13.29% exceeded the policy return of 12.29%, with the difference of 1.00% coming from staff's active management decisions, which are authorized under the System's Investment Policy. The Investment Policy allows for staff's tactical use of leverage, which was utilized for the first time in Fiscal Year 2023. The use of leverage averaged 8.0% over the course of the fiscal year which added an extra 1.13% of return to the portfolio. Staff's choice of managers and tactical asset allocation positioning subtracted 0.18% to the return in Fiscal Year 2024.

Asset Allocation Overview

The Board of Trustees reviews MPERS' asset allocation annually, with a more formal asset/liability study completed at least every five years (the most recent study was completed in Fiscal Year 2020). The asset allocation in place today is a culmination of over 20 years of restructuring the portfolio with the goal of strong performance across various market environments, not just when the stock market is strong or on the rise. Those efforts have served the System well, generating consistent performance results with a lower risk profile (as measured by standard deviation of returns). MPERS' 5- 10-, and 20-year returns have a Sharpe ratio that ranks in the top 1% of the public fund peer universe (a Sharpe ratio measures a system's risk-adjusted returns or the amount earned for a given level of risk). The reduced volatility in the portfolio has also lowered the volatility of contribution rates for the employers, which have now remained stable for over 10 years after climbing considerably following the financial crisis.

MPERS' breaks down all investment strategies into three broad beta groups (equities, interest rates and credit, and real assets). As of June 30, 2024, all the sub-asset class allocations were within the acceptable ranges established by MPERS' Investment Policy. The table below lists the ending allocations as of June 30, 2023, along with the target and actual asset allocation as of June 30, 2024. Following the table are descriptions of each beta group and its underlying assets.

Beta Group Sub-Asset Allocation	**June 30, 2023 Ending Allocation**	**June 30, 2024 Target Allocation**	**June 30, 2024 Ending Notional Value Allocation**	**June 30, 2024 Ending Fair Value Allocation**
Equity Beta	**49.19%**	**50.00%**	**49.03%**	**47.28%**
Public Equity	*36.64*	*40.00*	*37.45*	*35.31*
Private Equity	*12.55*	*10.00*	*11.58*	*11.97*
Rates and Credit	**29.31**	**30.00**	**29.65**	**30.67**
Income	*19.84*	*22.50*	*20.33*	*21.03*
Opportunistic Debt	*9.47*	*7.50*	*9.32*	*9.64*
Real Assets	**21.40**	**20.00**	**21.11**	**21.83**
Real Assets	*12.72*	*10.00*	*11.52*	11.91
Real Estate	*8.68*	*10.00*	*9.59*	9.92
Cash	**0.10**	**0.00**	**0.21**	**0.21**

Equity Beta

The equity beta group is comprised of two asset types: public equity and private equity. The equity beta group currently represents 49.03% of the overall portfolio. Within that overall equity allocation, the fund is overweight private equity structures (11.58% versus the target of 10%), which is offset by an underweight to public equity (37.45% versus the target of 40%). The result of the current positioning is an underweight to the traditional equity markets. The equity beta group returned 18.28% for Fiscal Year 2024.

Public Equity

MPERS' public equity portfolio ended Fiscal Year 2024 with an 22.15% return, outperforming the global equity policy benchmark which rose in value by 19.38%. Public equity portfolio performance is divided into two sub-components - diversified beta and active managers. For Fiscal Year 2024, the diversified beta component (which is about 90% of the assets invested) returned 23.30% relative to the benchmark return of 19.38% (MSCI ACWI). The active manager component underperformed the benchmark with a 17.74% return, due to one active strategy focusing on public US micro cap equities. Smaller US companies did not perform as well as larger, tech focused US companies by significant amounts. In this case, the US micro cap strategy returned 5.49% while the global benchmark (MSCI ACWI) returned 19.38% and the US-centered S&P 500 returned 24.56%. The remaining two active management strategies outperformed this year. Notably, the active regional banking strategy enjoyed a strong rebound relative to last year's weakness, returning 21.77% for the year.

Private Equity

Private equity returned 8.16% for Fiscal Year 2024, underperforming the benchmark return (S&P 500 + 3%) of 33.69%. Despite this challenging year, private equity continues to be one of the best performing asset classes over longer time periods. Over a 15-year period, private equity has outperformed traditional equity by 2.3%, significantly benefiting the overall return of the plan.

Private equity continues to face a challenging environment. For many years, it thrived on the back of low interest rates which helped to propel its rapid growth. However, with the Federal Reserve aggressively raising interest rates beginning in March 2022, the path to growth has become more difficult as higher interest costs have decreased free cash flow and thus constrained growth.

MPERS' focus on managers who build and create organic growth with lower leverage has proven highly successful. Even in a challenging economic climate, the private equity portfolio remains cash flow positive due to several strong realizations, as it continues to create value and provide diversification to the overall portfolio.

Rates and Credit Beta

The rates and credit beta group consists of the traditional fixed income portfolio and the opportunistic debt portfolio. The overall allocation stands at 29.65% versus the target of 30%. During Fiscal Year 2024, this beta group returned 8.67% versus the benchmark of 4.67%. On a more granular level, the traditional fixed income subcomponent delivered a 7.19% return (versus the benchmark of 2.74%), while the opportunistic debt subcomponent gained 11.70% (versus the benchmark of 10.44%).

Traditional Fixed Income

Although its exposure increased from Fiscal Year 2023, MPERS remained consistently underweight the traditional fixed income target allocation throughout Fiscal Year 2024 and ended the year with a 20.33% allocation (compared to the target asset allocation of 22.5%). Yields on U.S. Treasury bonds rose during the year, with the 10-year Treasury bond rising from 3.81% to 4.36% (almost hit 5% in October 2023) and the 30-year Treasury bond rising from 3.85% to 4.51%. This yield increase was in-line with the previous year, but was partially offset by a compression of credit spread that started in October of 2023. This year's price pattern is a good example of how the tactical authority delegated to staff can be uniquely additive to a portfolio return. The year started with interest rates and credit spreads increasing until about October of 2023 – 10 year yields went from 3.81% to almost 5% by October of 2023. Staff used their tactical discretion to accumulate significant exposure to both interest rates and credit spread during this market weakness. From October of 2023, interest rates and credit spreads compressed to lower levels causing the performance of fixed income to improve dramatically. However, this resulted in a mediocre return for traditional fixed income benchmarks; for example, MPERS' traditional fixed income benchmark returned 2.74%. However, staff's ability to tactically manage the fixed income ranges and mix of credits in the portfolio outperformed that benchmark with a return of 7.19%. The tactical latitude the staff is delegated led to a 4.45% out performance during an otherwise mediocre period for the broader fixed income markets.

The increase in interest rates since 2022 has changed fixed income attractiveness relative to the actuarial target of 6.5%. However, as this year shows, that attractiveness will ebb and flow with the opportunities in the market. The tactical authority delegated to staff allows the fixed income allocation to become more prominent when the market rewards our investment with yields that are attractive to our actuarial target. However, when yields are unattractive to that end, the allocation will become less prominent. This year is an excellent example of how flexibility in portfolio management is critical to superior, risk-focused returns.

Opportunistic Debt

The offset to MPERS' underweight position to traditional fixed income is a modest overweight position of opportunistic debt strategies. The year began with a 9.47% allocation relative to a 7.5% policy target and ended at 9.32%. The asset class generated a 11.70% return, which outperformed the publicly traded high yield benchmark return of 10.44%.

The opportunistic debt portfolio is diversified among direct lending, public market investments, and distressed investments. The portfolio is largely built out and most of the focus in recent years has been on pivoting commitments away from direct lending and toward strategies that have flexibility to be more opportunistic. The Opportunistic Debt portfolio is diversified across several different investment strategies, including opportunistic credit, distressed debt, direct lending, special situations, and public market investments. MPERS has utilized these strategies to varying degrees over the last 15+ years, and as such the portfolio is well-established. In recent years, the investment focus has leaned toward increasing exposure to opportunistic credit in anticipation of increased market volatility. Many of these investments continue to have "dry powder" (the ability to deploy capital), which can be invested as attractive opportunities arise. Going forward, the pace of new commitments is expected to be in line with past years and can be partially funded by rotating exposure from maturing legacy investments to strategies that are expected to benefit from continued global economic uncertainty.

Real Assets Beta

The broad real assets beta group includes MPERS' real estate holdings along with other real asset-backed strategies (such as energy, infrastructure, timber, and mining). The overall allocation to the real assets beta group stands at 21.11% (relative to the target allocation of 20%) and generated a 9.12% return (versus a benchmark of -2.63%) in Fiscal Year 2024. The real asset strategies returned 14.31% for the year (versus the benchmark of 7.08%), with the various real estate strategies producing a 2.59% return (versus the benchmark of -12.33%).

Real Estate

The underlying real estate allocation has a target of 10% of assets and includes a mix of public and private equity strategies, as well as tactical exposures to public and private debt strategies. MPERS started the year with an 8.68% allocation and ended with an 9.59% allocation. The portfolio generated a 2.59% return for the year, outperforming the policy benchmark return of -12.33%. The core real estate portfolio (primarily stabilized and fully leased properties) generated a -6.58% return, while the non-core portfolio (value-added or opportunistic real estate strategies) returned 4.58%.

While office vacancy rates improved this year, they remain higher than average in most major U.S. cities. Higher interest rates have proven to be a large challenge to real estate. Debt financing is typically a key dynamic in the real estate market and with debt now more expensive to carry, many properties are “underwater,” i.e., the interest expense exceeds the rental income received by tenants. Staff recognized this risk shortly after the onset of COVID and did two things. The first action was to reduce focus on core real estate investing and the underlying exposure to office buildings. The second action was to steer real estate investment towards the resurging retail shopping center markets that serve local communities. Both actions served the System well in Fiscal Year 2024 and were large contributors to the outperformance within the real estate sector.

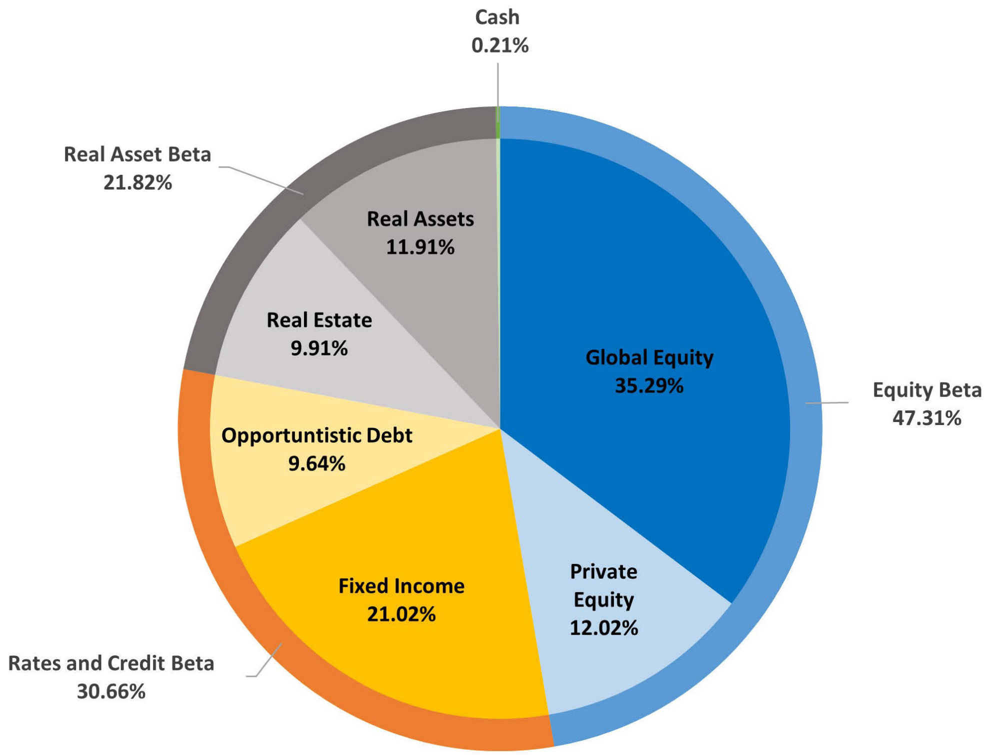
Real Assets

The underlying real asset allocation has a target of 10% of assets and includes a mix of natural resource strategies, infrastructure and transportation, and timber strategies. MPERS started the year with a 12.72% allocation, which decreased throughout the year and ended with a 11.52% allocation. The portfolio continues to benefit from the current inflationary environment, generating a 14.31% return for the year and outperforming the policy benchmark return of 7.08%. The natural resources portfolio was up 7.29% on the year. MPERS’ infrastructure strategies had another consistent year and produced a return of 10.14%. After rising 43.6% the previous year, the timber portfolio was up another 40.44% in Fiscal Year 2024 led by strong realized land sales in Tennessee and Montana. The timber portfolio now has a five-year annualized return of 23.72%, which is the highest returning asset class over the past five years. The timber portfolio, which started out as a pilot program, has turned into a real differentiator within the broader real assets portfolio and has produced meaningful excess returns at the total fund level.

Looking Forward

This year’s results were great across all time frames and performance metrics. These results prove the investment portfolio has been an important element of MPERS’ funding success over the last 20 or so years. What isn’t clear from the numbers is the role MPERS’ investment policies play in those results. Those investment policies provide flexibility to be opportunistic in all market environments. For instance, over the last few years, some public market investments have become more attractive when compared to the private market alternatives. MPERS’s investment policies afforded staff the flexibility to pivot away from private market investing to public market investing when the opportunity arose. That pivot to a “simpler is better” portfolio has been a good move for the portfolio’s results. However, those policies also afford staff the ability to reverse that course when the best opportunities are in the private markets. When looking-forward about how to maintain these great investment results, maintaining flexibility is the paramount issue. Fortunately, MPERS has a governance model that provides staff with flexibility to adapt to changing investment markets. MPERS’ diversified asset allocation is designed to perform well throughout a wide range of investment markets, and staff are confident the portfolio is well positioned to meet the long-term goals of the System.

Investment Summary



Amounts Reported by Beta Groups and Management-Type Allocation
June 30, 2024

	Fair Value	Percent of Fair Value
Global Equity		
Global Public Equity	$ 1,295,084,232	35.29%
Private Equity	441,015,287	12.02%
Rates and Credit		
Fixed Income	771,387,917	21.02%
Opportunistic Debt	353,654,165	9.64%
Real Assets		
Real Estate	363,775,318	9.91%
Real Assets	436,926,643	11.91%
Cash	7,810,388	0.21%
Total Investments	$ 3,669,653,950	100.00%
Reconciliation to Statement of Plan Net Assets:		
Less: Accrued Investment Interest and Income	$ (11,273,296)	
Less: Investment Sales Receivable	(7,877,386)	
Plus: Investment Purchases Payable	7,714,394	
Currency Adjustment	0	
	$ 3,658,217,662	

Largest Equity Securities
(Non-Commingled Funds)

Security	Fair Value	Percent of Total
GRANITE RIDGE RES INC COM	$20,775,946	10.6269%
CF OWL ROCK TECHNOLOGY FINANCE CORP	11,101,746	5.6786
MFC SPDR SERIES TRUST SPDR PORTFOLIO S&P 500 ETF	8,294,400	4.2426
QCR HLDGS INC COM	3,789,720	1.9384
COASTAL FINL CORP WA COM NEW COM NEW	3,675,005	1.8798
NORTHEAST BK LEWISTON ME COM	3,531,706	1.8065
BANCORP INC DEL COM STK	3,497,218	1.7888
WESTERN ALLIANCE BANCORPORATION COM	3,381,663	1.7297
BANC CALIF INC COM	3,311,170	1.6937
BARINGS BDC INC COM	3,247,670	1.6612

Largest Fixed Income Securities
(Non-Commingled Funds)

Par Value	Security	Fair Value
$28,980,000	GNMA SR 23-153 CL BY 6.0% 10-20-2053	$29,970,661
25,000,000	GNMA SER 23-151 CL BL 6.5% 10-20-2053	26,161,248
20,983,012	SLM STUDENT LN TR SER 08-5 CL A4 FLTG RT 10-25-2027	21,023,983
19,008,933	GNMA SER 24-30 CL BY 6.5% 02-20-2054	19,347,739
15,778,522	GNMA SR 23-132 CL LB 6.5% 09-20-2053	16,724,280
17,500,000	PVTPL SLM STUDENT LN TR 2012-8 SER 12-8 CL B FLTG RT DUE 04-28-2070 BEO	16,363,526
15,000,000	MTN COML MTG TR FLTG RT 6.7369% DUE 03-15-2039	14,817,188
15,000,000	FEDERAL FARM CREDIT BANK 4.2% DUE 04-07-2036 REG	13,878,063
13,584,191	GNMA SR 23-113 CL NY 6.5% 08-20-2053	13,874,510
12,050,000	NORTHSTAR ED FIN INC DEL 2007-1 STUDENT LN ASSET BKD NT CL 1A-6 01-29-2046 BEO	11,715,073
10,979,555	GNMA SER 23-55 CL B 6% 03-20-2053	11,193,444
942,617	MFO PIMCO PAPS ASSET BACKED SECURITIES	10,981,484
10,870,718	BRAZOS HIGHER ED AUTH INC 02-25-2035 REG	10,938,443
10,000,000	UNITED STATES OF AMER TREAS BONDS 0.75% 02-15-2042	10,837,121
10,000,000	GNMA 6.5% SR 23-148 CL JL 10-20-2053	10,406,572
10,000,000	RIAL 2022-FL8 VAR RT 0% DUE 12-31-2037	10,022,950
10,000,000	PVTPL FS RIALTO 2022-FL5 ISSUER LLC SR 22-FL5 CL A VAR RT 06-19-2027	10,016,318
10,000,000	J P MORGAN CHASE COML MTG SECS TR 5.129%08-15-2039	10,009,375
9,960,146	PVTPL ECMC GROUP STUDENT LN TR SR 17-2A CL A FLTG RT 05-25-2067	9,928,999
10,000,000	BX TR 2022-VAMF COML MTG PASS THRU CTF CL A 6.18689% 01-15-2039	9,862,561

Space restrictions make it impractical to include the entire investment portfolio in this report. However, a portfolio listing is available for review in the office of the executive director of MPERS.

Investment Fees

Historically, MPERS has reported investment management fees and accrued incentive fees (performance fees), and in the last several years MPERS has expanded reporting to include fund pass-through expenses and portfolio company expenses. MPERS reports returns net of all fees and expenses; the additional fee categories reported have no impact on investment performance or returns. Comparing fees among peers is challenging given the lack of industry standard governing fee reporting. MPERS has taken a very conservative approach and reports all fees.

The strongest driver of fees is MPERS' asset allocation and use of private assets. Private assets have served an important role in MPERS' asset allocation including diversification and alpha generation. MPERS continues to monitor fees during the manager due diligence process and considers fees to be one factor when making investment decisions. MPERS strives to produce the highest net-of-fee returns regardless of the investment structure.

Summary of Investment Expenses
For the Year Ended June 30, 2024

Investment Expenses	
Management and Performance Fees by Asset Class	
Equities	$ 2,443,193
Fixed Income Core	31,214
Opportunistic Debt	12,221,451
Real Estate	6,726,795
Private Equity	7,614,701
Real Assets	10,228,867
Hedge Funds	1,669,357
Total Management and Performance Fees	**$40,935,578**
Investment Custodial Fees	$ 89,446
Performance Management	220,075
General Consultant (Monitoring) Fee	355,000
Professional Fees	546,036
Interest Expense	2,142,248
Other Fees / Expenses	983,708
Total Investment Expenses	**$ 45,272,091**

Expenses Accrued, Fiscal Year 2024

Manager	Base Fees	Performance Fees	Pass Through Fund Expenses (1)	Portfolio Company Expenses (2)	Total
ABRY Partners	$ 6,406	$ (6,846)	$ 5,477	$ 0	$ 5,037
Aisling Capital	129,876	0	21,968	0	151,844
American Infrastructure	5,850	0	5,769	0	11,619
Anchorage Capital	183,839	1,191,918	0	0	1,375,757
Apollo Real Estate	0	0	1,055	0	1,055
Ares	271,754	0	14,492	0	286,246
Arrowroot Capital	313,150	301,398	201,497	0	816,045
Banner Ridge Partners	1,531,506	875,050	72,822	0	2,479,378
Blackstone	434,257	(501,312)	51,033	0	(16,022)
Blackstone GSO	139,443	362,170	74,207	0	575,820
Blackstone Investment	1,425,202	35,756	0	0	1,460,958
Blue Owl Capital	642,328	730,558	181,347	0	1,554,233
Blue Road	207,316	880,296	38,986	0	1,126,598
Bridgewater	194,967	0	9,829	0	204,796
Carlyle Aviation Partners	10,625	(105,387)	0	0	(94,762)
CarVal	11,073	41,450	0	0	52,523
Catchmark	17,861	438,970	0	0	456,831
CBRE Caledon Capital Management	46,078	0	0	0	46,078
CBRE Investment Management	168,226	258,036	67,945	0	494,207
Centersquare Investment Management	540,811	0	0	0	540,811
CenterSquare Investment Management, LLC	223,574	0	0	0	223,574
CIM Group	318,461	1,799,727	145,501	0	2,263,689
Clarion Partners	12,765	0	0	0	12,765
Corrum Capital Management	300,120	197,803	193,214	0	691,137
DC Capital Partners	207,500	577,805	72,608	0	857,913
Drive Capital	884,369	49,381	22,847	0	956,597
Energy & Minerals Group (EMG)	508,924	0	55,965	0	564,889
Fortress	120,993	444,937	118,262	0	684,192
Francisco Partners	332,962	392,447	(74,635)	0	650,774
Grey Rock Energy	0	2,038,487	81,307	0	2,119,794
Grove Street Advisors	239,375	370,475	0	0	609,850
Heartwood Partners	150,590	469,796	27,895	0	648,281
Kennedy Capital Management	1,224,761	0	0	0	1,224,761
KKR	87,338	168,528	25,015	0	280,881
KPS Capital Partners	10,826	698,378	62,726	0	771,930
Long Ridge Equity	120,069	31,607	197,618	0	349,294
Longford Capital	578,021	339,056	84,652	0	1,001,729
Luxor Capital	3,603	0	0	0	3,603

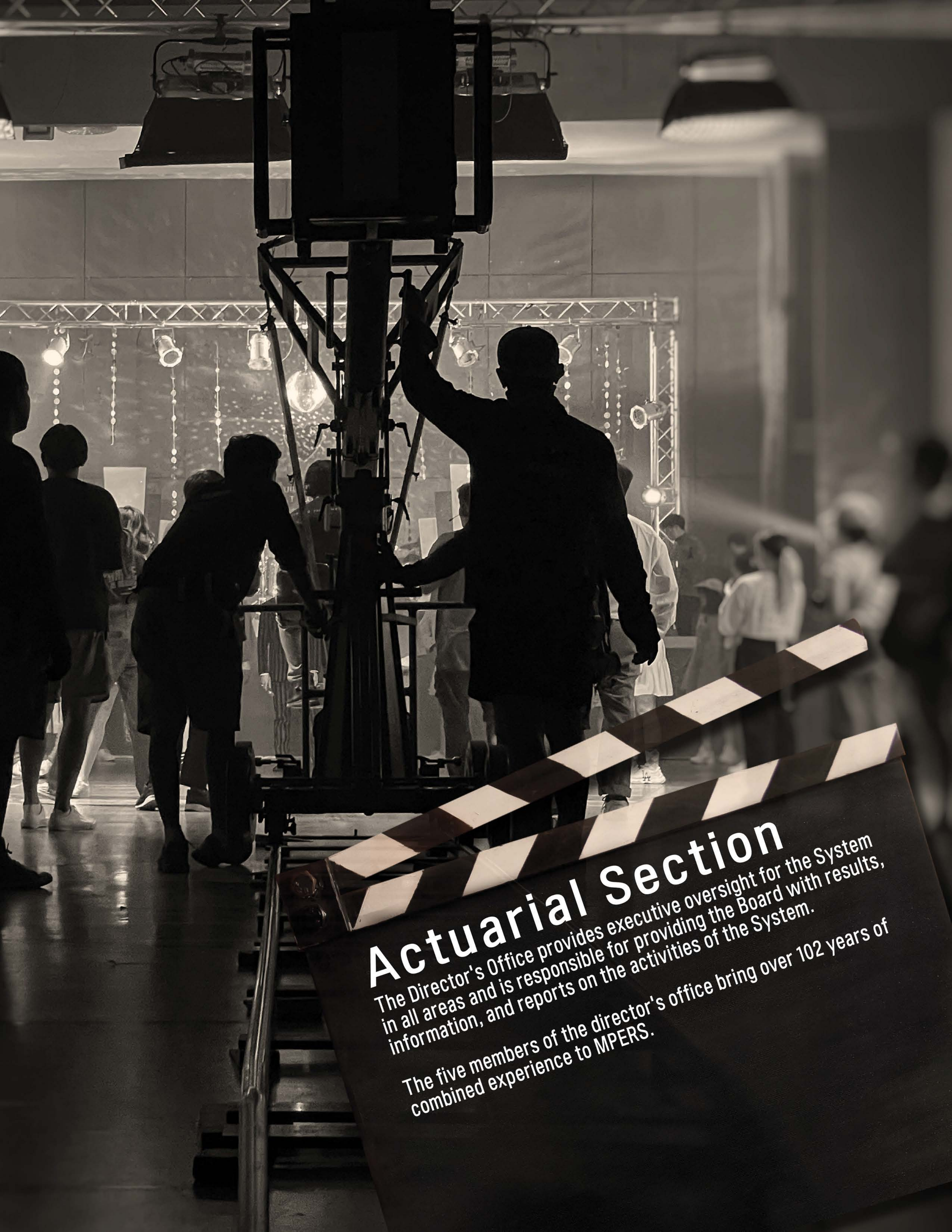
Continued on next page.

(1) Fund Pass Through Expenses are administrative expenses charged to the fund and paid by the limited partners (or investors, including MPERS), in addition to the management fee. These expenses may include, but are not limited to, accounting, audit, legal, and custody expenses directly related to the administration of the underlying fund investments.
(2) Portfolio Company Expenses are fees or costs paid to the general partners (fund managers) of private equity funds which are not applied as offsets to gross management fees. These charges are paid by the underlying portfolio companies of the funds, and therefore, are indirectly paid by MPERS.

Expenses Accrued, Fiscal Year 2024 (continued)

Manager	Base Fees	Performance Fees	Pass Through Fund Expenses (1)	Portfolio Company Expenses (2)	Total
Mercato Partners	287,159	649,791	(2,833)	0	934,117
MGG Investment Group	330,401	417,273	308,595	0	1,056,269
Miravast	229,648	692,593	34,047	0	956,288
Monomoy Capital Partners	0	418,067	36,845	0	454,912
New Mountain Capital	702,621	334,211	84,515	0	1,121,347
Nexus Capital	348,797	0	0	0	348,797
NGP	119,877	75,052	22,216	0	217,145
Northern Shipping	4,751	0	0	0	4,751
OCP Asia	508,487	(42,145)	238,921	0	705,263
Octagon Credit	30,842	0	0	0	30,842
OpenGate Capital	263,281	(680,150)	5,145	0	(411,724)
Orion Resource Partners	271,461	444,260	152,543	0	868,264
Parametric Portfolio Associates	557,089	0	0	0	557,089
Pfingsten Partners	14,565	358,765	4,298	0	377,628
PIMCO Management	84,980	295,482	0	0	380,462
Principal Financial	746,139	0	0	0	746,139
Quantum Energy Partners	120,747	215,977	32,523	0	369,247
Ridgewood Energy	345,708	437,887	99,174	0	882,769
Riverstone Credit Partners	170,740	(394,364)	143,527	0	(80,097)
Sciens Capital	37,825	0	9,906	0	47,731
Sculptor Capital	644,402	401,341	142,029	0	1,187,772
Shore Capital	0	0	42,575	0	42,575
Shoreline Capital	465	0	0	0	465
Silver Point Capital	347,713	905,026	102,366	0	1,355,105
Stockdale Capital Partners	543,396	1,017,064	383,530	0	1,943,990
Timberland Investment Resources	394,733	(451,367)	0	0	(56,634)
Torchlight Investors	14,413	(6,583)	20,558	0	28,388
TPG NewQuest	111,397	(800,597)	25,246	0	(663,954)
Tristan Capital Partners	367,460	0	572,776	0	940,236
Turnbridge Capital	59,882	0	26,967	0	86,849
Varde Partners	182,942	796,150	51,382	0	1,030,474
Vectis - BPEA	5,394	41,986	(19,012)	0	28,368
Total Manager Expenses	**$ 19,452,134**	**$ 17,206,203**	**$ 4,277,241**	**$ 0**	**$ 40,935,578**
Professional Expenses					
Investment Custodial Fee	$ 89,446	$ 0	$ 0	$ 0	$ 89,446
Performance Management	220,075	0	0	0	220,075
General Consultant (Monitoring) Fee	355,000	0	0	0	355,000
Professional Fees	546,036	0	0	0	546,036
Interest Expense	2,142,248	0	0	0	2,142,248
Other Investment Expenses	983,708	0	0	0	983,708
Total Professional Expenses	**$ 4,336,513**	**$ 0**	**$ 0**	**$ 0**	**$ 4,336,513**
Total Investment Expenses	**$ 23,788,647**	**$ 17,206,203**	**$ 4,277,241**	**$ 0**	**$ 45,272,091**

Brokerage Firm	Total Commission	Number of Shares	Commission Rate
THE NORTHERN TRUST COMPANY	$229,653	10,438,776	$0.0220
RAYMOND JAMES & ASSOCIATES, INC.	4,446	206,095	0.0216
INTL FCSTONE FINANCIAL INC.	4,029	166,587	0.0242
NATIONAL FINANCIAL SERVICES LLC	2,640	2,916,723	0.0009
STIFEL, NICOLAUS & COMPANY, INCORPORATED	1,984	19,457,297	0.0001
WELLS FARGO SECURITIES, LLC	1,945	1,350,424	0.0014
RBC CAPITAL MARKETS, LLC	638	88,678,780	0.0000
BTIG, INC.	629	20,976	0.0300
PERSHING LLC	584	2,519,479	0.0002
PIPER JAFFRAY & CO.	570	18,991	0.0300
WELLS FARGO BANK, N.A.	434	10,578,318	0.0000
BMO CAPITAL MARKETS CORP	430	536,647	0.0008
MORGAN STANLEY AND CO., LLC	304	59,118,661	0.0000
CACEIS BANK FRANCE	287	18,685	0.0153
ROBERT W. BAIRD CO.INCORPORATED	285	19,431	0.0147
UBS AG LONDON BRANCH	277	68,099	0.0041
DAIWA CAPITAL MARKETS AMERICA INC.	256	27,111	0.0095
ROTH CAPITAL PARTNERS	245	8,164	0.0300
INSTINET INVESTMENT SERVICES LIMITE	205	6,842	0.0300
All Others	3,326	5,897,552,077	0.0000
Total	**$253,167**	**6,093,708,163**	
Average Commission Rate			**$0.0000**



Actuarial Section

The Director's Office provides executive oversight for the System in all areas and is responsible for providing the Board with results, information, and reports on the activities of the System.

The five members of the director's office bring over 102 years of combined experience to MPERS.

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September 11, 2024

Retirement Board
Missouri Department of Transportation
and Highway Patrol Employees' Retirement System
1913 William Street
Jefferson City, Missouri 65102

Ladies and Gentlemen:

This report was prepared at the request of the Board and is intended for use by the Retirement System and those designated or approved by the Board. This report may be provided to parties other than the System only in its entirety and only with the permission of the Board. GRS is not responsible for unauthorized use of this report. This report should not be relied on for any purpose other than the purpose described.

The basic financial objective of the Missouri Department of Transportation and Highway Patrol Employees' Retirement System (MPERS) is to establish and receive contributions which:

(1) When expressed in terms of percents of active member payroll, will remain approximately level from generation to generation of Missouri citizens; and

(2) When combined with present assets and future investment returns, will be sufficient to meet the present and future financial obligations of MPERS.

In order to measure progress toward this fundamental objective, MPERS has annual actuarial valuations performed. The valuations: (i) measure the present financial position; and (ii) establish contribution rates that provide for the current cost and level percent-of-payroll amortization of unfunded actuarial liabilities over a reasonable period. An actuarial valuation was performed based upon benefit conditions, data and assumptions as of June 30, 2024. This valuation indicates that contribution rates for the period beginning July 1, 2025 that are at least equal to the calculated contribution rates will meet the Board's financial objective. The calculated contribution rates are 37.013% of payroll for the 5,763 Non-Uniformed employees and 58.005% of payroll for the 1,116 Uniformed Patrol employees.

The plan administrative staff provides the actuary with data for the actuarial valuation. The actuary relies on the data after reviewing it for internal and year to year consistency. Member data was not audited by the actuary. The actuary summarizes and tabulates population data in order to analyze longer term trends. We are not responsible for the accuracy or completeness of the data provided by MPERS.

Retirement Board
September 11, 2024
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Gabriel, Roeder, Smith & Company was responsible for the following schedules found in the Actuarial Section:

- Summary of Actuarial Assumptions and Methods
  - Probabilities of Separation from Active Employment
  - Individual Salary Increases
  - Joint Life Retirement Values
  - Probabilities of Retirement for Members
  - Probabilities of Disability for Members
- Summary of Member Data Included in Valuations
  - Active Members by Attained Age and Years of Service
  - Schedule of Active Member Valuation Data
- Solvency Test
- Derivation of Financial Experience
- Schedule of Retirees and Beneficiaries Added and Removed
- Summary of Plan Provisions
- Legislative Changes

Gabriel, Roeder, Smith & Company was responsible for the following schedules found in the Financial Section:

- Schedule of Changes in the Employer's Net Pension Liability
- Schedule of Employer's Net Pension Liability
- Schedule of Employer Contributions
- Schedule of the Actuarially Determined Contributions

Actuarial valuations are based upon assumptions regarding future activity in specific risk areas including the rates of investment return and payroll growth, eligibility for the various classes of benefits, and longevity among retired lives. These assumptions are adopted by the Board. The assumptions and the methods comply with the requirements of the Governmental Accounting Standards Board (GASB). Each actuarial valuation takes into account all prior differences between actual and assumed experience in each risk area and adjusts the contribution rates as needed. Actuarial methods and assumptions were adopted by the Board pursuant to the June 30, 2022 Experience Study. Gabriel, Roeder, Smith & Company has produced the following reports as of June 30, 2024:

- Annual Actuarial Valuation Report
- GASB Statement Nos. 67 and 68 Valuation Report

In order to gain a full understanding of the condition of this Plan, these reports should be read in their entirety.

To the best of our knowledge, this report is complete and accurate and was made in accordance with standards of practice promulgated by the Actuarial Standards Board. The assumptions and methods used for funding purposes meet the parameters set by Actuarial Standards of Practice. The actuarial assumptions used for this valuation produce results which, individually and in the aggregate, are reasonable. The combined effect of the assumptions is expected to have no significant bias (i.e., not significantly optimistic or pessimistic).

Retirement Board
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The employer contributions determined in this report are based on the Board funding policy. This policy is discussed on page 4 of the annual actuarial valuation report. We commend the Board for its aggressive monitoring and updating of the funding policy over the recent past. However, continued employer contributions at the current level do not guarantee benefit security. We, therefore, encourage the Board to continue to routinely monitor and update its funding policy and to continue to consider benefit security when doing so.

The annual actuarial valuation report includes risk measures on pages A-13 and A-14, but does not include a more robust assessment of the risks of future experience not meeting the actuarial assumptions. Additional assessment of risks was outside the scope of this assignment. We recommend that the Board consider performing an analysis to assess risk related to investment and payroll.

This report was prepared using our proprietary valuation model and related software which in our professional judgment has the capability to provide results that are consistent with the purposes of the valuation and has no material limitations or known weaknesses. We performed tests to ensure that the model reasonably represents that which is intended to be modeled.

Future actuarial measurements may differ significantly from the current measurements presented in this report due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law.

This report has been prepared by actuaries who have substantial experience valuing public employee retirement systems. Heidi G. Barry and Jeffrey T. Tebeau are Members of the American Academy of Actuaries (MAAA) and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein.

The signing actuaries are independent of the plan sponsor.

Based upon the valuation results, it is our opinion that the Missouri Department of Transportation and Highway Patrol Employees' Retirement System continues to operate in accordance with actuarial principles of level percent-of-payroll financing. It is important to the well-being of the System that it continues to receive contributions at the actuarially determined levels. It is also important to continue to monitor both the total funded status and the funded status of the retiree liabilities to ensure that the funding policy is consistent with the expected life span of the respective unfunded obligation.

Respectfully submitted,

Gabriel, Roeder, Smith & Company

Heidi G Barry

Heidi G. Barry, ASA, FCA, MAAA

Jeffrey T. Tebeau

Jeffrey T. Tebeau, FSA, EA, FCA, MAAA

Valuation Date	June 30, 2023
Actuarial Cost Method	Entry Age
Amortized Method	Closed, Level Percent of Payroll
Remaining Amortization Period	16 years
Asset Valuation Method	3-Year smoothed fair value: 20% Corridor
Actuarial Assumptions:	
Investment Rate of Return	6.50%
Projected Salary Increase	3.00% to 10.50%
Cost-of-Living Adjustments	1.80% Compound
Includes Wage Inflation at	3.00 %

An actuarial valuation is based upon an actuarial cost method, an asset valuation method, and actuarial assumptions. These methods and assumptions are chosen by the Board of Trustees after consultation with the Actuary and other advisors.

The actuarial cost method is called the Entry Age Actuarial Cost Method. This method is consistent with the Board's level percent-of-payroll funding objective. With this method, the level percent-of-payroll is determined that will fund a member's retirement benefit over the member's entire working lifetime, from date of hire (Entry Age) to date of exit from the active member population. Differences in the past between assumed and actual experience become part of unfunded actuarial accrued liabilities and are amortized with level percent-of-payroll contributions. This cost method was first used in the June 30, 1999 valuation.

The asset valuation method is a three-year smoothed fair value method in which assumed investment return is recognized immediately each year and differences between actual and assumed investment return are phased-in over a closed three-year period. This asset valuation method is intended to give recognition to the long-term accuracy of market values while filtering out and dampening short-term market swings. This method was first used in the June 30, 1999 valuation.

The actuarial assumptions used in producing the valuation fall into two broad classes: economic assumptions and demographic assumptions. Economic assumptions refer to long-term rates of investment return, wage growth, covered population growth, and inflation. Demographic assumptions refer to retirement rates, turnover rates, disability rates, merit and seniority pay increases, and mortality rates. The current assumptions are based upon a 2017-2022 study of experience. The assumptions are reviewed from time to time to keep them reasonably current with expected experience. The next experience study is scheduled to follow the June 30, 2027 valuation.

Economic Assumptions

The investment return rate used in making the valuation was 6.50% per year, compounded annually (net after administrative expenses). This rate of return is not the assumed real rate of return. The real rate of return over wage inflation is defined to be the portion of investment return which is more than the wage inflation rate. Considering wage inflation recognition of 3.00%, the 6.50% rate translates to an assumed real rate of return over wage inflation of 3.50%. This rate was first used for the June 30, 2021 valuation.

Pay increase assumptions for individual active members are shown on Table I. Part of the assumption for each year of service is for a merit and/or seniority increase, and the other 3.00% recognizes wage inflation. These rates were first used for the June 30, 2023 valuation.

Price Inflation is assumed to be 2.25%. The COLA is assumed to be 80% of the price inflation assumption. This results in a 1.80% annual COLA assumption (Closed Plan members hired prior to August 28, 1997 receive a minimum 4% COLA. These increases are made until the total of the increases reaches 65% of initial benefit at which time the increases will have the minimum removed). It is assumed that the 1.8% COLA will always be paid. All COLAs are assumed to be paid on the anniversary of retirement.

The active member group size is assumed to remain constant at its present level.

The active member payroll for all members is assumed to increase 3.00% annually.

Non-Economic Assumptions

Post-Retirement Healthy Mortality Rates are used to measure the probabilities of members dying after retirement. The rates currently in use are from the Pub-2010 General, Healthy Retiree, Amount-Weighted, Below-Median Income tables for males and females for Non-Uniformed members and Pub-2010 Public Safety Healthy Retiree, Amount-Weighted, tables for males and females for Uniformed members. Rates are decreased by 5% for non-uniform males and increased by 4% for uniform males. The assumed rates are adjusted for mortality improvement back to the observation period base year of 2010 and then projected generationally from 2010 to 2019 using scale MP-2021 and 90% of scale MP-2021 for years following 2019. Sample rates are shown on Tables II and III. These rates were first used in the June 30, 2023 valuation.

Post-Retirement Disabled Mortality Rates. The rates currently in use for disabled lives are the Pub-2010 General Disabled Retiree, Amount-Weighted tables for males and females for Non-Uniformed members and the Pub-2010 Public Safety Disabled Retiree, Amount-Weighted tables for males and females for Uniformed members. The assumed rates are adjusted for mortality improvement back to the observation period base year of 2010 and then projected generationally from 2010 to 2019 using scale MP-2021 and 90% of scale MP-2021 for years following 2019. Sample rates are shown on Table IV and V. These rates were first used in the June 30, 2023 valuation.

Pre-Retirement Mortality Rates. The rates currently in use for active lives are the Pub-2010 General, Employee, Amount-Weighted, Below-Median Income tables for males and females for Non-Uniformed members and the Pub-2010 Public Safety Employee, Amount-Weighted, tables for males and females for Uniformed members. The assumed rates are adjusted for mortality improvement back to the observation period base year of 2010 and then projected generationally from 2010 to 2019 using scale MP-2021 and 90% of scale MP-2021 for years following 2019. Sample rates are shown on Table VI and VII. These rates were first used in the June 30, 2023 valuation.

The probabilities of retirement for members eligible to retire are shown on Table IX. The rates for full retirement were first used in the June 30, 2023 valuation. The rates for reduced retirement were first used in the June 30, 2023 valuation. Upon retirement, members are assumed to pick the BackDROP period that when combined with the remaining annuity produces the highest liability.

The probabilities of disability for members eligible to retire are shown on Table X. The rates for disability were first used in the June 30, 2023 valuation.

The probabilities of withdrawal from service, death-in-service and disability are shown for sample ages on Table XI. The death-in-service and disability rates were first used in the June 30, 2023 valuation. The withdrawal rates were first used in the June 30, 2023 valuation.

The data about persons now covered and about present assets was furnished by the System's administrative staff. Although examined for general reasonableness, the data was not audited by the Actuary. Data was furnished as of May 31 and assumed to be statistically equivalent to June 30.

The actuarial valuation computations were made by or under the supervision of a Member of the American Academy of Actuaries (MAAA).

Probabilities of Separation From Active Employment
Less Than 5 Years of Service

	MoDOT, Civilian Patrol, and MPERS		Uniformed Patrol	
Service	Male	Female	Male	Female
0 – 1	28.00%	22.00%	10.00%	10.00%
1 – 2	18.50%	15.00%	6.00%	6.00%
2 – 3	12.50%	14.00%	3.25%	3.25%
3 – 4	9.00%	12.00%	3.00%	3.00%
4 – 5	8.00%	7.00%	2.75%	2.75%

Probabilities of Separation From Active Employment
More Than 5 Years of Service

	MoDOT, Civilian Patrol, and MPERS		Uniformed Patrol	
Age	Male	Female	Male	Female
25	9.04%	10.40%	3.51%	3.51%
30	8.05%	9.43%	3.51%	3.51%
35	6.48%	7.49%	2.49%	2.49%
40	5.04%	5.73%	1.47%	1.47%
45	3.78%	4.63%	1.02%	1.02%
50	2.76%	3.94%	0.59%	0.59%
55	2.02%	3.71%	0.30%	0.30%
60	1.64%	3.71%	0.22%	0.22%

Salary Increase Assumptions
Service Based Salary Scale
% Merit Increases in Salaries Next Year

Service Index	MoDOT, Civilian Patrol, and MPERS Rate	Uniformed Patrol Rate
1	7.50%	6.00%
2	3.80%	4.00%
3	2.80%	3.00%
4	1.50%	2.00%
5	1.00%	2.00%
6	0.80%	1.90%
7	0.00%	1.80%
8	0.00%	1.70%
9	0.00%	1.60%
10	0.00%	1.50%
11	0.00%	1.40%
12	0.00%	1.30%
13	0.00%	1.20%
14	0.00%	1.10%
15	0.00%	1.00%
16	0.00%	0.90%
17	0.00%	0.85%
18	0.00%	0.70%
19	0.00%	0.60%
20	0.00%	0.50%
21	0.00%	0.00%
22	0.00%	0.00%
23	0.00%	0.00%
24	0.00%	0.00%
25	0.00%	0.00%

Joint Life Retirement Values
(6.50% Interest)

Non-Uniformed

Sample Attained Ages	Present Value of $1 Monthly for Life		Percent Dying Next Year		Future Life Expectancy (years)	
	Men	Women	Men	Women	Men	Women
50	$155.63	$164.70	0.6531%	0.3811%	32.71	37.1
55	147.94	158.14	0.8204%	0.4597%	28.36	32.43
60	138.51	149.60	1.0572%	0.5472%	24.15	27.82
65	126.74	138.34	1.2559%	0.6582%	20.04	23.25
70	111.98	123.93	1.8425%	1.0347%	16.06	18.8
75	95.12	106.82	2.9402%	1.8063%	12.41	14.65
80	77.11	87.77	5.0243%	3.3041%	9.21	10.93

Uniformed

Sample Attained Ages	Present Value of $1 Monthly for Life		Percent Dying Next Year		Future Life Expectancy (years)	
	Men	Women	Men	Women	Men	Women
50	$163.19	$166.66	0.1903%	0.1352%	34.99	37.46
55	154.32	158.66	0.3047%	0.2523%	29.99	32.39
60	143.15	148.75	0.5424%	0.4579%	25.15	27.51
65	129.76	136.79	0.9252%	0.7293%	20.59	22.88
70	114.06	122.38	1.5148%	1.1565%	16.35	18.51
75	96.15	105.52	2.6130%	1.9949%	12.49	14.45
80	76.98	87.09	4.7474%	3.5787%	9.12	10.85

The present values shown above are for illustrative purposes only. They are straight life amounts and do not include the value of future post-retirement increases.

Percent of Eligible Active Members Retiring Next Year
(Rates of Retirement)

Closed and Year 2000 Plans

	MoDOT, Civilian Patrol, and MPERS				Uniformed Patrol
	Male		Female		
Age	Normal	Early	Normal	Early	Normal
50	39.00%	0.00%	25.00%	0.00%	45.00%
55	25.00%	3.00%	28.00%	3.00%	26.00%
60	21.00%	5.00%	23.00%	5.00%	100.00%
65	30.00%	0.00%	39.00%	0.00%	100.00%
70	40.00%	0.00%	50.00%	0.00%	100.00%

Year 2000 – 2011 Tier

	MoDOT, Civilian Patrol, and MPERS			Uniformed Patrol
	Normal			Normal
Age	Age & Service	Rule of 90	Early	
55	0.00%	30.00%	0.00%	30.00%
60	0.00%	30.00%	0.00%	100.00%
65	0.00%	30.00%	10.00%	100.00%
70	100.00%	100.00%	0.00%	100.00%

Percent of Members Becoming Disabled at the Indicated Age
(Rates of Disability)

MoDOT, Civilian Patrol, and MPERS			Uniformed Patrol	
Age	Male	Female	Male	Female
25	0.08%	0.08%	0.10%	0.10%
30	0.09%	0.09%	0.10%	0.10%
35	0.12%	0.12%	0.10%	0.10%
40	0.16%	0.16%	0.10%	0.10%
45	0.26%	0.26%	0.10%	0.10%
50	0.43%	0.43%	0.10%	0.10%
55	0.82%	0.82%	0.10%	0.10%
60	1.41%	1.41%	0.10%	0.10%

Schedule of Funding Progress

Year Ending June 30	Actuarial Asset Value	Entry Age Accrued Liability	Unfunded Accrued Liability	Funded Ratio	Actuarial Covered Payroll(1)	UAAL as a Percentage of Covered Payroll
2015	$1,967,001,509	$3,715,845,651	$1,748,844,142	52.94%	$342,264,593	510.96%
2016	2,086,654,348	3,761,733,004	1,675,078,656	55.47%	344,275,147	486.55%
2017	2,172,787,144	3,802,443,730	1,629,656,586	57.14%	356,142,973	457.58%
2018(2)	2,274,248,122	3,981,838,941	1,707,590,819	57.12%	353,371,000	483.23%
2019	2,415,343,431	4,037,369,708	1,622,026,277	59.82%	362,356,771	447.63%
2020	2,481,329,531	4,092,097,897	1,610,768,366	60.64%	363,572,158	443.04%
2021(2)	2,711,272,503	4,344,072,912	1,632,800,409	62.41%	358,987,667	454.83%
2022	2,925,561,398	4,410,685,047	1,485,123,649	66.33%	366,743,306	404.95%
2023(2)	3,247,983,333	4,709,391,407	1,461,408,074	68.97%	400,360,785	365.02%
2024	3,504,129,658	4,963,323,460	1,459,193,802	70.60%	438,548,450	332.73%

(1) Values are estimated from contribution rate and amount.
(2) New assumptions and/or methods adopted.

See Note 5 of Notes to the Financial Statements in the Financial Section for funding policy information.

Member and Employer Contribution Rates

Year Ended June 30	Employer Contributions All Benefit Structures		Member Contributions 2011 Tier All Groups
	Uniformed Patrol Group	Non-Uniformed Group	
2015	58.19%	58.76%	4.00%
2016	57.76%	58.05%	4.00%
2017	58.00%	58.00%	4.00%
2018	58.00%	58.00%	4.00%
2019	58.00%	58.00%	4.00%
2020	58.00%	58.00%	4.00%
2021	58.00%	58.00%	4.00%
2022	58.00%	58.00%	4.00%
2023	58.65%	58.00%	4.00%
2024	58.00%	58.00%	4.00%

See Required Supplementary Information, Schedule of Employers' Contributions for more information.

	Non-Uniformed				
	Civilian Patrol	**MoDOT and MPERS**	**Non-Uniformed Total**	**Uniformed Patrol**	**Grand Total**
Active Members					
Closed Plan	139	737	876	252	1,128
Year 2000 Plan (Closed)	294	1,212	1,506	348	1,854
Year 2000 Plan – 2011 Tier (Open)	615	2,766	3,381	516	3,897
Total Active Members	1,048	4,715	5,763	1,116	6,879
Total Active Members Prior Year	1,048	*4,451*	*5,499*	*1,122*	*6,621*
Retiree – Regular Pensioners					
Closed Plan	472	3,008	3,480	1,168	4,648
Year 2000 Plan (Closed)	718	4,177	4,895	13	4,908
Year 2000 Plan – 2011 Tier (Open)	21	46	67	1	68
Total Regular Pensioners	1,211	7,231	8,442	1,182	9,624
Self Insured Disability Pensioners	1	29	30	3	33
Fully Insured Disability Pensioners	9	69	78	5	83
Terminated Vested Members	272	1,759	2,031	174	2,205
Total	**2,541**	**13,803**	**16,344**	**2,480**	**18,824**
Active Member Valuation Payroll	$ 60,191,438	$ 276,011,787	$ 336,203,225	$102,100,197	$ 438,303,422
Active Member Valuation Payroll (Prior Year)	*$ 55,285,348*	*$ 243,470,293*	*$ 298,755,641*	*$ 90,569,104*	*$ 389,324,745*
Unfunded Actuarial Accrued Liability	N/A	N/A	$ 949,721,014	$ 509,472,788	$ 1,459,193,802

Member data for actuarial valuation is as of May 31, 2024.

MoDOT and MPERS

Closed Plan

Attained Age	Counted by Complete Years of Service to Valuation Date							Totals	
	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30+	No.	Valuation Payroll
< 20	0	0	0	0	0	0	0	0	$ 0
20 – 24	0	0	0	0	0	0	0	0	0
25 – 29	0	0	0	0	0	0	0	0	0
30 – 34	0	0	0	0	0	0	0	0	0
35 – 39	0	0	0	0	0	0	0	0	0
40 – 44	0	0	0	0	6	6	0	12	808,069
45 – 49	0	1	3	2	51	85	2	144	10,578,457
50 – 54	0	0	3	1	35	159	52	250	19,502,262
55 – 59	0	0	4	4	25	66	94	193	15,004,601
60 – 64	1	1	2	1	12	44	50	111	7,902,305
65 – 69	1	0	0	0	1	6	12	20	1,502,250
70+	0	0	0	0	1	1	5	7	605,838
Totals	**2**	**2**	**12**	**8**	**131**	**367**	**215**	**737**	**$55,903,782**

Average Age	**54.3 years**
Average Service	**28.0 years**
Average Pay	**$75,853**

Year 2000 Plan

Attained Age	Counted by Complete Years of Service to Valuation Date							Totals	
	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30+	No.	Valuation Payroll
< 20	0	0	0	0	0	0	0	0	$ 0
20 – 24	0	0	0	0	0	0	0	0	0
25 – 29	0	0	0	0	0	0	0	0	0
30 – 34	0	0	0	0	0	0	0	0	0
35 – 39	6	6	23	67	2	0	0	104	6,438,015
40 – 44	8	6	27	141	69	0	0	251	16,798,148
45 – 49	8	7	22	105	130	1	0	273	18,356,958
50 – 54	5	16	25	89	100	1	0	236	15,591,411
55 – 59	12	7	10	76	88	1	0	194	11,563,773
60 – 64	1	4	14	52	47	1	0	119	6,853,464
65 – 69	0	1	5	17	7	0	0	30	1,721,346
70+	0	0	0	1	4	0	0	5	302,480
Totals	**40**	**47**	**126**	**548**	**447**	**4**	**0**	**1,212**	**$77,625,595**

Average Age	**49.7 years**
Average Service	**17.9 years**
Average Pay	**$64,048**

Member data for actuarial valuation is as of May 31, 2024.

MoDOT and MPERS

Year 2000 Plan – 2011 Tier

Attained Age	Counted by Complete Years of Service to Valuation Date							Totals	
	0 – 4	**5 – 9**	**10 – 14**	**15 – 19**	**20 – 24**	**25 – 29**	**30+**	**No.**	**Valuation Payroll**
< 20	11	0	0	0	0	0	0	11	$ 430,311
20 – 24	222	5	0	0	0	0	0	227	9,809,110
25 – 29	315	88	0	0	0	0	0	403	20,795,729
30 – 34	225	210	33	0	0	0	0	468	25,718,923
35 – 39	204	167	47	0	0	0	0	418	22,598,120
40 – 44	151	115	41	0	0	0	0	307	15,876,895
45 – 49	120	89	28	0	0	0	0	237	12,018,127
50 – 54	134	84	31	0	0	0	0	249	12,928,219
55 – 59	120	85	31	0	0	0	0	236	11,896,267
60 – 64	73	58	29		1	0	0	161	7,986,523
65 – 69	14	23	8	0	0	0	0	45	2,211,748
70+	1	2	1	0	0	0	0	4	212,438
Totals	**1,590**	**926**	**249**	**0**	**1**	**0**	**0**	**2,766**	**$142,482,410**

Average Age	**39.9 years**
Average Service	**4.6 years**
Average Pay	**$51,512**

Member data for actuarial valuation is as of May 31, 2024.

Uniformed Patrol

Closed Plan

Attained Age	Counted by Complete Years of Service to Valuation Date							Totals	
	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30+	No.	Valuation Payroll
< 20	0	0	0	0	0	0	0	0	$ 0
20 – 24	0	0	0	0	0	0	0	0	0
25 – 29	0	0	0	0	0	0	0	0	0
30 – 34	0	0	0	0	0	0	0	0	0
35 – 39	0	0	0	0	0	0	0	0	0
40 – 44	0	0	1	0	0	0	0	1	72,646
45 – 49	0	0	0	0	13	33	0	46	4,996,707
50 – 54	0	0	0	1	4	102	34	141	15,447,852
55 – 59	1	0	0	0	1	30	31	63	6,943,231
60 – 64	0	0	0	0	0	0	1	1	125,743
65 – 69	0	0	0	0	0	0	0	0	0
70+	0	0	0	0	0	0	0	0	0
Totals	**1**	**0**	**1**	**1**	**18**	**165**	**66**	**252**	**$27,586,179**

Average Age	**52.3 years**
Average Service	**28.2 years**
Average Pay	**$109,469**

Year 2000 Plan

Attained Age	Counted by Complete Years of Service to Valuation Date							Totals	
	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30+	No.	Valuation Payroll
< 20	0	0	0	0	0	0	0	0	$ 0
20 – 24	0	0	0	0	0	0	0	0	0
25 – 29	0	0	0	0	0	0	0	0	0
30 – 34	0	0	1	0	0	0	0	1	99,172
35 – 39	1	0	27	45	1	0	0	74	7,239,747
40 – 44	0	0	10	77	26	0	0	113	11,512,320
45 – 49	1	0	3	31	62	3	0	100	10,510,495
50 – 54	0	0	3	15	30	1	0	49	4,992,889
55 – 59	0	0	0	3	6	0	0	9	899,588
60 – 64	0	0	0	2	0	0	0	2	208,688
65 – 69	0	0	0	0	0	0	0	0	0
70+	0	0	0	0	0	0	0	0	0
Totals	**2**	**0**	**44**	**173**	**125**	**4**	**0**	**348**	**$35,462,899**

Average Age	**44.3 years**
Average Service	**18.7 years**
Average Pay	**$101,905**

Member data for actuarial valuation is as of May 31, 2024.

Uniformed Patrol

Year 2000 Plan – 2011 Tier

Attained Age	Counted by Complete Years of Service to Valuation Date							Totals	
	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30+	No.	Valuation Payroll
< 20	0	0	0	0	0	0	0	0	$ 0
20 – 24	46	0	0	0	0	0	0	46	3,161,875
25 – 29	85	58	0	0	0	0	0	143	10,203,699
30 – 34	44	92	34	0	0	0	0	170	12,899,222
35 – 39	21	29	69	0	0	0	0	119	9,752,253
40 – 44	3	9	9	0	0	0	0	21	1,618,128
45 – 49	0	4	8	0	0	0	0	12	1,025,524
50 – 54	1	0	1	0	0	0	0	2	147,449
55 – 59	0	1	2	0	0	0	0	3	242,969
60 – 64	0	0	0	0	0	0	0	0	0
65 – 69	0	0	0	0	0	0	0	0	0
70+	0	0	0	0	0	0	0	0	0
Totals	**200**	**193**	**123**	**0**	**0**	**0**	**0**	**516**	**$39,051,119**

Average Age	**31.8 years**
Average Service	**6.4 years**
Average Pay	**$75,680**

Member data for actuarial valuation is as of May 31, 2024.

Civilian Patrol

Closed Plan

Attained Age	Counted by Complete Years of Service to Valuation Date							Totals	
	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30+	No.	Valuation Payroll
< 20	0	0	0	0	0	0	0	0	$ 0
20 – 24	0	0	0	0	0	0	0	0	0
25 – 29	0	0	0	0	0	0	0	0	0
30 – 34	0	0	0	0	0	0	0	0	0
35 – 39	0	0	0	0	0	0	0	0	0
40 – 44	0	1	0	0	1	0	0	2	97,179
45 – 49	0	0	0	0	6	15	1	22	1,479,444
50 – 54	0	1	1	1	5	32	6	46	2,958,691
55 – 59	0	0	3	0	6	14	13	36	2,411,545
60 – 64	0	0	1	1	2	12	8	24	1,585,429
65 – 69	0	0	1	0	0	2	5	8	478,913
70+	0	0	0	0	0	0	1	1	44,520
Totals	**0**	**2**	**6**	**2**	**20**	**75**	**34**	**139**	**$ 9,055,721**

Average Age	**54.9 years**
Average Service	**27.6 years**
Average Pay	**$65,149**

Year 2000 Plan

Attained Age	Counted by Complete Years of Service to Valuation Date							Totals	
	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30+	No.	Valuation Payroll
< 20	0	0	0	0	0	0	0	0	$ 0
20 – 24	0	0	0	0	0	0	0	0	0
25 – 29	0	0	0	0	0	0	0	0	0
30 – 34	0	1	0	0	0	0	0	1	58,686
35 – 39	2	1	14	15	1	0	0	33	2,179,311
40 – 44	0	1	10	33	20	0	0	64	4,634,634
45 – 49	0	4	8	25	21	0	0	58	4,187,593
50 – 54	3	0	8	18	22	1	0	52	3,221,638
55 – 59	0	5	6	30	18	0	0	59	3,532,469
60 – 64	0	1	4	10	8	0	0	23	1,458,019
65 – 69	0	0	0	2	1	0	0	3	138,825
70+	1	0	0	0	0	0	0	1	16,968
Totals	**6**	**13**	**50**	**133**	**91**	**1**	**0**	**294**	**$19,428,143**

Average Age	**49.1 years**
Average Service	**17.5 years**
Average Pay	**$66,082**

Member data for actuarial valuation is as of May 31, 2024.

Civilian Patrol

Year 2000 Plan – 2011 Tier

Attained Age	Counted by Complete Years of Service to Valuation Date							Totals	
	0 – 4	5 – 9	10 – 14	15 – 19	20 – 24	25 – 29	30+	No.	Valuation Payroll
< 20	0	0	0	0	0	0	0	0	$ 0
20 – 24	29	0	0	0	0	0	0	29	1,191,183
25 – 29	87	18	0	0	0	0	0	105	5,413,347
30 – 34	56	51	17	0	0	0	0	124	7,051,144
35 – 39	19	27	29	0	0	0	0	75	4,310,371
40 – 44	25	19	13	0	0	0	0	57	2,999,905
45 – 49	20	16	14	0	0	0	0	50	2,530,931
50 – 54	22	20	12	0	0	0	0	54	2,624,456
55 – 59	35	16	12	0	0	0	0	63	2,955,558
60 – 64	18	18	7	0	0	0	0	43	1,935,996
65 – 69	4	6	4	0	0	0	0	14	642,147
70+	0	0	1	0	0	0	0	1	52,536
Totals	**315**	**191**	**109**	**0**	**0**	**0**	**0**	**615**	**$31,707,574**

Average Age	**40.8 years**
Average Service	**5.5 years**
Average Pay	**$51,557**

Member data for actuarial valuation is as of May 31, 2024.

Actuarial Valuation for June 30	Number of Participating Employers	Number of Active Members	Covered Payroll	Average Pay	Percent Change in Average Pay from Prior Year
2015	3	7,358	$334,400,980	$45,447	1.1%
2016	3	7,441	339,799,379	45,666	0.5
2017	3	7,456	348,979,212	46,805	2.5
2018	3	7,391	351,496,555	47,557	1.6
2019	3	7,421	359,296,056	48,416	1.8
2020	3	7,355	360,851,545	49,062	1.3
2021	3	7,219	355,194,571	49,203	0.3
2022	3	6,874	356,662,243	51,886	5.5
2023	3	6,621	389,324,744	58,802	13.3
2024	3	6,879	438,303,422	63,716	8.4
				Ten-Year Average	**3.6**

Member data for actuarial valuation is as of May 31, 2024.

The MPERS funding objective is to meet long-term benefit promises through contributions that remain approximately level from year to year as a percent of member payroll. If the contributions to the System are level in concept and soundly executed, the System will pay all promised benefits when due – the ultimate test of financial soundness.

A solvency test is one means of checking a system's progress under its funding program. In a solvency test for a non-contributory plan, the plan's present assets (cash and investments) are compared with: 1) The liabilities for future benefits to present retired lives and 2) The liabilities for service already rendered by members. In a system that has been following the discipline of level percent-of-payroll financing, the liabilities for future benefits to present retired lives (liability 1) will be fully covered by present assets (except in rare circumstances). In addition, the liabilities for service already rendered by members (liability 2) will be partially covered by the remainder of present assets. The larger the funded portion of liability 2, the stronger the condition of the system.

The schedule below illustrates the history of liability 2 of the System.

Valuation Date June 30	(1) Member Contributions	(2) Retirees and Beneficiaries	(3) Active and Inactive Members	Present Valuation Assets	Portion of Present Values Covered by Present Assets			
	Millions				(1)	(2)	(3)	Total
2015	$3	$2,444	$1,269	$1,967	100%	80%	0%	53%
2016	5	2,470	1,287	2,087	100%	84%	0%	55%
2017	8	2,488	1,306	2,173	100%	87%	0%	57%
2018*	11	2,598	1,373	2,274	100%	87%	0%	57%
2019	14	2,656	1,367	2,415	100%	90%	0%	60%
2020	18	2,726	1,348	2,481	100%	90%	0%	61%
2021*	21	2,882	1,441	2,711	100%	93%	0%	62%
2022	24	2,952	1,435	2,926	100%	98%	0%	66%
2023*	29	3,120	1,560	3,248	100%	100%	6%	69%
2024	36	3,269	1,658	3,504	100%	100%	12%	71%

**New Assumptions and/or methods.*

Actual experience will never coincide exactly with assumed experience (except by coincidence). Gains and losses may offset each other over a period of years, but sizeable year-to-year variations from assumed experience are common. Detail on the derivation of the experience gain (loss) is shown below.

UAAL Beginning of Year (at July 1)	$ 1,461,408,074
Normal Cost	55,738,811
Transfer In and Service Purchase – Liability	7,632,246
Contributions	(270,240,171)
Interest	88,268,279
Net Change in LTD Assets	0
Expected UAAL Before Any Changes	1,342,807,239
Effect of Benefit Changes	0
Effect of Changes of Assumptions and Methods	0
Effect of Adjustment	0
Expected UAAL After Changes	1,342,807,239
End of Year UAAL (at June 30)	$ 1,459,193,802
Gain/(Loss) for Year	$ (116,386,563)
Gain/(Loss) as a percent of actuarial accrued liabilities at start of year ($4,709.4 million)	(2.5)%

Valuation Date June 30	Experience Gain (Loss) as % of Beginning Accrued Liability
2015	2.4%
2016	1.1%
2017	0.1%
2018	0.6%
2019	0.7%
2020	(1.2)%
2021	3.6%
2022	1.9%
2023	(0.6)%
2024	(2.5)%

	Added to Rolls		Removed from Rolls		Rolls End of Year			% Increase	
Valuation Date	Number	Annual Allowances	Number	Annual Allowances	Number	Annual Allowances	Average Annual Allowances	Annual Allowance	Average Annual Allowance
FY2024									
Retirees	376	$ 5,218,015	220	$ 3,401,886	7,753	$ 230,284,946	$ 29,703	5.28%	3.17%
Beneficiaries	119	1,483,601	116	1,400,911	1,929	44,790,301	23,207	6.56%	6.34%
Disabilities	19	0	25	27,092	121	817,496	6,756	-3.59%	1.98%
FY2023									
Retirees	392	$ 5,767,290	239	$ 3,459,294	7,597	$ 218,727,201	$ 28,791	4.52%	2.42%
Beneficiaries	146	1,650,536	138	1,500,200	1,926	42,033,928	21,824	4.13%	3.69%
Disabilities	18	0	15	0	127	847,936	6,625	3.04%	-1.78%
FY2022									
Retirees	430	$ 5,592,522	240	$ 4,287,730	7,444	$ 209,268,115	$ 28,112	1.67%	-0.93%
Beneficiaries	136	1,815,705	127	1,538,452	1,918	40,367,666	21,047	4.03%	3.55%
Disabilities	18	0	22	12,610	124	822,885	6,745	-2.42%	2.38%
FY2021									
Retirees	335	$ 4,388,320	289	$ 4,630,165	7,254	$ 205,830,949	$ 28,375	1.21%	0.57%
Beneficiaries	161	2,092,581	131	1,421,420	1,909	38,802,739	20,326	4.31%	2.67%
Disabilities	14	0	25	6,652	128	843,262	6,588	0.46%	9.09%
FY2020									
Retirees	339	$ 4,389,004	204	$ 360,775	7,208	$ 203,365,258	$ 28,214	2.39%	0.53%
Beneficiaries	129	1,441,941	122	1,316,530	1,879	37,200,605	19,798	3.35%	2.64%
Disabilities	7	0	26	750	139	839,398	6,039	-1.93%	0.89%
FY2019									
Retirees	308	$ 4,104,217	187	$ 2,746,320	7,077	$ 198,618,027	$ 28,065	2.54%	0.78%
Beneficiaries	133	1,424,022	130	1,211,576	1,866	35,993,556	19,289	3.04%	2.87%
Disabilities	22	0	27	31,787	143	855,947	5,986	1.26%	4.80%
FY2018									
Retirees	311	$ 3,842,195	201	$ 2,780,558	6,956	$ 193,705,411	$ 27,847	1.96%	0.34%
Beneficiaries	112	1,103,494	124	855,794	1,863	34,930,984	18,750	1.97%	2.62%
Disabilities	18	0	25	26,921	148	845,327	5,712	-2.82%	2.44%
FY2017									
Retirees	352	$ 4,642,501	196	$ 3,023,457	6,846	$ 189,990,373	$ 27,752	1.29%	-1.02%
Beneficiaries	127	1,536,955	134	1,099,249	1,875	34,257,599	18,271	3.49%	3.88%
Disabilities	24	0	24	15,898	155	869,833	5,576	-3.92%	-4.54%
FY2016									
Retirees	300	$ 3,820,071	193	$ 3,032,208	6,690	$ 187,571,039	$ 28,038	2.31%	0.68%
Beneficiaries	129	1,205,294	121	889,494	1,882	33,100,896	17,588	3.18%	2.74%
Disabilities	20	0	29	5,787	155	905,306	5,841	0.21%	6.05%
FY2015									
Retirees	406	$ 4,669,565	188	$ 2,712,395	6,583	$ 183,337,549	$ 27,850	2.61%	-0.79%
Beneficiaries	113	1,290,336	139	900,991	1,874	32,080,172	17,119	2.65%	4.07%
Disabilities	21	0	30	22,387	164	903,386	5,508	-3.43%	1.87%

New disabilities are covered/paid by The Standard Insurance Co.
Data of this chart is as of June 30, 2024.

Comparison of the Closed Plan, the Year 2000 Plan, and the Year 2000 Plan – 2011 Tier

For the Year Ended June 30, 2024

Plan Provision	Closed Plan	Year 2000 Plan	Year 2000 Plan - 2011 Tier
Membership Eligibility	• Members hired prior to July 1, 2000, who became vested, and worked or continue to work in a position normally requiring at least 1,040 hours of work annually.	• Members hired for the first time on or after July 1, 2000, in a position normally requiring at least 1,040 hours of work annually. • Members who left state employment prior to becoming vested and return to work (for 12 continuous months) on or after July 1, 2000, in a position normally requiring at least 1,040 hours of work annually.	• Members hired for the first time on or after January 1, 2011, in a position normally requiring at least 1,040 hours of work annually.
Normal Retirement Eligibility	• Age 65 & active with 4 years of service. • Age 65 with 5 years of service. • Age 60 with 15 years of service. • “Rule of 80”/minimum age 48. Uniformed Members Only: • Age 55 & active with 4 years of service. • Age 55 with 5 years of service. • Mandatory retirement at age 60; no minimum service requirement (active only).	• Age 62 with 5 years of service. • “Rule of 80” / minimum age 48 (active only). Uniformed Members Only: • Mandatory retirement at age 60; no minimum service requirement (active only).	• Age 67 with 5 years of service. • “Rule of 90” / minimum age 55 (active only). Uniformed Members Only: • Age 55 & active with 5 years of service (active only). • Mandatory retirement at age 60; no minimum service requirement (active only).
Early (Reduced) Retirement Eligibility	• Age 55 with 10 years of creditable service.	• Age 57 with 5 years of creditable service.	• Age 62 with 5 years of creditable service (active only).
Life Benefit	1.6% x FAP** x service (base benefit is increased by 33⅓% for uniformed patrol members only).	1.7% x FAP** x service	1.7% x FAP** x service
Temporary Benefit	Not available.	0.8% x FAP** x service Until age 62, only if retiring under “Rule of 80”.	0.8% x FAP** x service Until age 62, only if retiring under “Rule of 90”.
Special Benefit	Uniformed Members Only: $90/mo payable until age 65, offset by any amount earned from gainful employment (does not apply if hired on or after January 1, 1995).	Uniformed Members Only: Until age 62, if retiring under “Rule of 80” or at mandatory age 60.	Uniformed Members Only: Until age 62, if retiring under either normal retirement eligibility provision.
Death Benefit	$5,000 benefit paid to named beneficiary • Available to active employees or LTD recipients who retired after September 28, 1985. • Available to work-related disability recipients after September 28, 1985.	$5,000 benefit paid to named beneficiary • Available to active employees or LTD recipients who retire. • Available to work-related disability recipients.	$5,000 benefit paid to named beneficiary • Available to active employees or LTD recipients who retire. • Available to work-related disability recipients.

Comparison of the Closed Plan, the Year 2000 Plan, and the Year 2000 Plan – 2011 Tier

For the Year Ended June 30, 2024 (continued)

Plan Provision	Closed Plan	Year 2000 Plan	Year 2000 Plan - 2011 Tier
Vesting	5 years of service.	5 years of service.	5 years of service, if active on or after January 1, 2018.
Cost-of-Living Allowance (COLA)	Annual COLA is equal to 80% of the change in the CPI-U with a maximum rate of 5%. Exception: If hired before August 28, 1997, annual COLA is a minimum of 4% until benefit increases reach 65% of the original benefit (cap). After 65% cap is reached, annual COLA will be equal to 80% of the change in the CPI-U, with a maximum rate of 5%.	Annual COLA is equal to 80% of the change in the CPI-U with a maximum rate of 5%.	Annual COLA is equal to 80% of the change in the CPI-U with a maximum rate of 5%.
Survivor Benefit (death before retirement) Non Duty-Related Death	If employee is vested: • Survivor benefit to eligible spouse calculated using the joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children under age 21. • If at least 3, but less than 5, years of service, the survivor benefit is calculated using 25% of the member's base benefit calculated as if the member retired on his/her date of death.	If employee is vested: • Survivor benefit to eligible spouse calculated using the joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children under age 21.	If employee is vested: • Survivor benefit to eligible spouse calculated using the joint & 100% survivor option or 80% of the member's life income annuity paid to eligible children under age 21.
Duty-Related Death	• Survivor benefit to eligible spouse or children no less than 50% of final average pay (no minimum service requirement).	• Survivor benefit to eligible spouse or children no less than 50% of final average pay (no minimum service requirement).	• Survivor benefit to eligible spouse or children no less than 50% of final average pay (no minimum service requirement).
Optional Forms of Payment	Payment options include: • Life income annuity • Unreduced joint & 50% survivor • Joint & 100% survivor • 60 or 120 guaranteed payments • BackDROP	Payment options include: • Life income annuity • Joint & 50% survivor • Joint & 100% survivor • 120 or 180 guaranteed payments • BackDROP	Payment options include: • Life income annuity • Joint & 50% survivor • Joint & 100% survivor • 120 or 180 guaranteed payments
Disability	Long-term disability and work-related disability.	Long-term disability and work-related disability.	Long-term disability and work-related disability.
Employee Contributions	Non-contributory.	Non-contributory.	4% of gross pay.

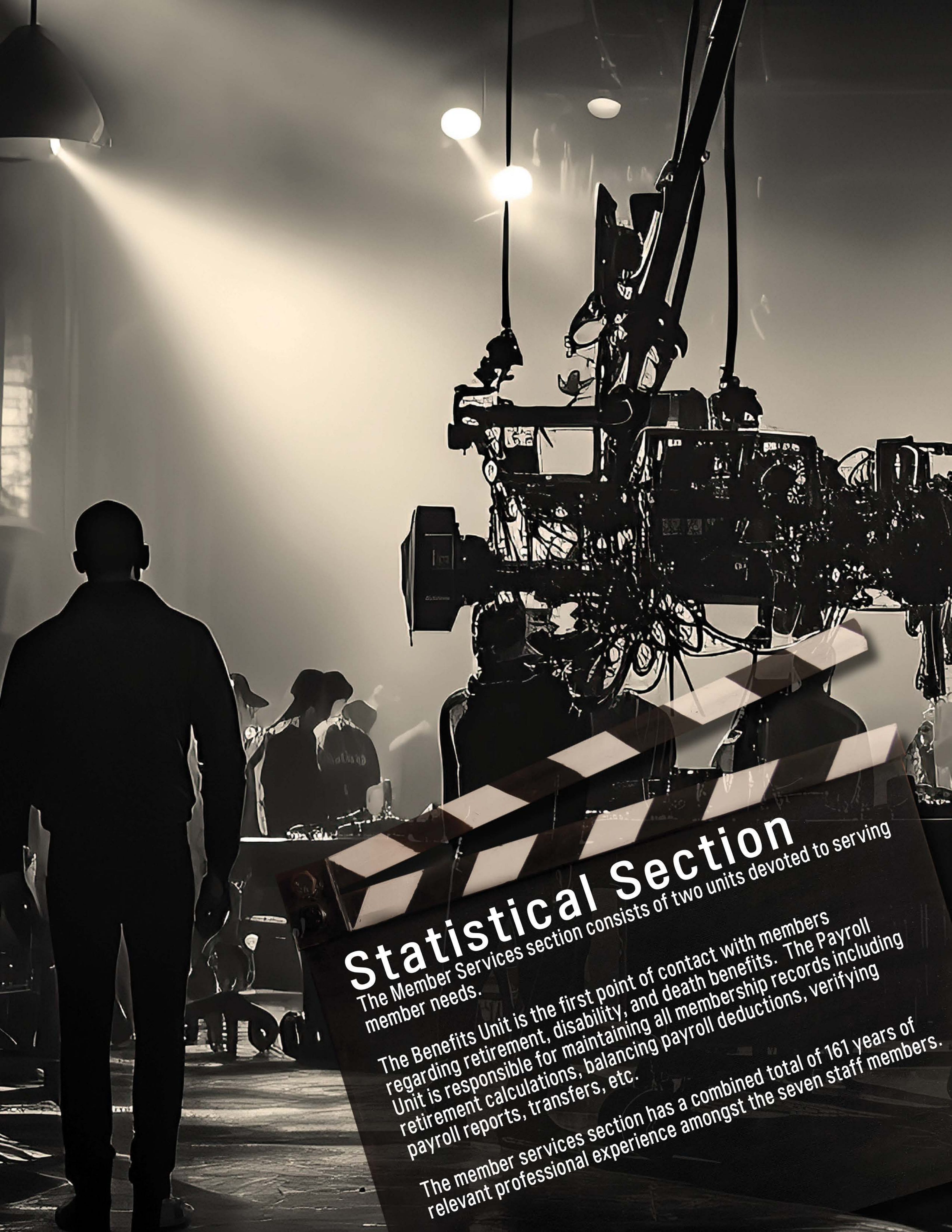
* *This summary describes the plan provisions in chapter 104 of the Missouri Revised Statutes. It does not overrule any other applicable statue or administrative rule and, in the event of a conflict, the applicable statue or rule would apply. The Year 2000 Plan was effective July 1, 2000 and the Year 2000 Plan – 2011 Tier was effective January 1, 2011. A complete summary is available at the MPERS office.*

** *Final Average Pay (FAP) – Average of highest 36 consecutive months of pay.*

See note 2 of Notes to the Financial Statements for more information.

For the fiscal year ended June 30, 2024, no legislation became effective. There were two bills passed during this period that will become effective August 28, 2023. Senate Bills 20 and 75 were Truly Agreed and Passed and signed into law by Governor Parson. In summary, as it relates to MPERS, these bills included an update that staggered the terms of elected trustees to the MPERS Board in order to mitigate the chances of all elected trustees turning over at the same time.

Furthermore, these bills included a myriad of updates to existing statutory sections that clarified and/or corrected provisions that will allow System staff to better implement the laws applicable to the retirement system. Nothing in the cleanup provisions affected the benefits of MPERS' members.



Statistical Section

The Member Services section consists of two units devoted to serving member needs.

The Benefits Unit is the first point of contact with members regarding retirement, disability, and death benefits. The Payroll Unit is responsible for maintaining all membership records including retirement calculations, balancing payroll deductions, verifying payroll reports, transfers, etc.

The member services section has a combined total of 161 years of relevant professional experience amongst the seven staff members.

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Financial Information
The chart on page 88 details a 10-year history of the additions (revenues) and deductions (expenses) of MPERS.

The chart on page 89 details a 10-year history of benefit payments by type.

Plan Membership
Overall, MPERS' membership increased by 386. Retired members and their beneficiaries increased by 153, terminated-vested members decreased by 33, and active members increased by 266.

Other charts and graphs in this section detail demographic information concerning our members and employers.

Sources: All non-accounting data in this section was derived from internal sources as of June 30, and the annual actuarial valuation reports. Member data may differ between some schedules because the valuations are performed using data as of May 31 each year.

MoDOT and Patrol Employee's Retirement System
Changes in Net Position, Last Ten Fiscal Years

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Additions										
Employer Contributions	$200,638,571	$199,609,396	$206,562,924	$204,955,180	$210,166,927	$210,871,852	$208,212,848	$212,711,117	$232,813,995	$254,358,101
Employee Contributions	2,086,000	2,503,824	3,238,502	3,721,983	4,449,428	4,983,989	5,334,102	5,899,734	6,838,152	8,249,824
Transfers from Other Systems	1,114,437	2,729,679	1,752,050	1,867,445	2,432,370	3,483,574	2,080,317	4,334,202	4,036,789	6,634,554
Other Contributions	1,208,162	978,689	1,645,487	1,279,434	1,546,916	1,563,362	1,761,860	2,421,844	573,233	997,691
Net Investment Income	92,645,423	21,432,090	220,301,127	197,619,367	154,326,511	(10,673,270)	699,644,251	122,767,485	264,756,429	432,121,321
Other Income	148	5	614	472	307	5,412	286	195	1,954	179
Total Additions to Plan Net Position	$297,692,741	$227,253,683	$433,500,704	$409,443,881	$372,922,459	$210,234,919	$917,033,664	$348,134,577	$509,020,552	$702,361,670
Deductions										
Benefit Payments	$241,714,876	$240,176,011	$251,284,152	$259,058,863	$259,817,811	$267,605,833	$270,122,851	$279,637,701	$289,056,536	$300,081,057
Administrative Expenses	4,066,944	4,370,860	4,515,458	4,693,492	4,372,966	4,291,028	4,585,473	5,229,018	5,529,258	6,250,950
Total Deductions from Plan Net Position	$245,781,820	$244,546,871	$255,799,610	$263,752,355	$264,190,777	$271,896,861	$274,708,324	$284,866,719	$294,585,794	$306,332,007
Change in Net Position	**$ 51,910,921**	**$ (17,293,188)**	**$177,701,094**	**$145,691,526**	**$108,731,682**	**$ (61,661,942)**	**$642,325,340**	**$ 63,267,858**	**$214,434,758**	**$396,029,663**

MoDOT and Patrol Employees' Retirement System
Benefit Payments by Type, Last Ten Fiscal Years

Type of Benefit	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Age and Service Benefits:										
Retiree and Survivor Annuity Payments	$218,827,986	$224,098,038	$227,997,513	$237,850,981	$238,205,549	$245,194,376	$250,420,018	$254,733,514	$265,534,764	$279,354,910
BackDROP Payments	16,366,338	10,677,166	16,887,349	14,546,108	15,424,880	15,787,033	13,585,357	17,688,088	15,605,731	12,241,819
Disability Benefits:										
Long Term Disability	76,061	66,389	60,352	49,613	35,987	26,488	21,023	14,370	8,884	20,789
Work-Related Disability	716,047	718,009	707,953	714,197	711,990	698,794	710,841	719,345	741,568	745,225
Normal Disability	108,891	109,027	109,455	110,310	112,000	114,119	115,952	100,068	94,927	96,833
Insured Disability	1,554,676	1,567,825	1,620,418	1,601,605	1,615,860	1,640,971	1,600,628	1,470,000	1,715,791	1,581,734
Death Benefits	810,000	820,000	855,153	860,000	820,000	890,000	1,255,000	1,130,000	1,065,000	960,000
Service Transfer Payments	3,147,482	1,921,451	2,724,631	2,823,042	2,111,007	2,457,945	1,802,900	2,757,330	3,317,630	4,082,999
Employee Contribution Refunds:										
Separation	105,759	194,346	312,833	494,439	748,194	772,544	605,305	1,016,535	944,258	977,459
Death	1,636	3,760	8,495	58,537	32,344	23,563	5,827	11,451	27,983	19,289
Total Benefits	$241,714,876	$240,176,011	$251,284,152	$259,108,832	$259,817,811	$267,605,833	$270,122,851	$279,640,701	$289,056,536	$300,081,057

(1) Reciprocal transfer legislation enacted effective August 28, 2011.

MoDOT and Patrol Employees' Retirement System
Budget to Actual Report

For the Year Ended June 30, 2024

	Annual Budget	Actual - Year End	Actual - % Spent	Budget Variance Favorable / (Unfavorable)
Administrative Expenses				
Salary/Benefits	$ 2,634,550	$ 2,455,248	93.19 %	$ 179,302
Professional Services	291,620	261,683	89.73 %	29,937
Meetings/Travel/Education	51,640	36,981	71.61 %	14,659
Member Education	15,234	6,104	40.07 %	9,130
Office Supplies	5,000	3,929	78.58 %	1,071
Printing/Postage	33,750	29,251	86.67 %	4,499
Membership Dues/Subscriptions	26,977	35,671	132.23 %	(8,694)
Utilities	29,160	28,983	99.39 %	177
Building Expenses/Maintenance	41,710	55,083	132.06 %	(13,373)
Equipment/Furniture	11,065	8,957	80.95 %	2,108
Information Technology	363,288	395,695	108.92 %	(32,407)
Total Administrative Expenses	$ 3,503,994	$ 3,317,585	94.68 %	$ 186,409
Investment Expenses				
Salary/Benefits	$ 3,547,758	$ 2,838,061	80.00 %	$ 709,697
Investment Services	685,000	689,521	100.66 %	(4,521)
Meetings/Travel/Education	63,100	61,391	97.29 %	1,709
Direct Operating Expenses	74,019	88,285	119.27 %	(14,266)
Total Investment Expenses	$ 4,369,877	$ 3,677,258	84.15 %	$ 692,619
TOTALS	**$ 7,873,871**	**$ 6,994,843**	**88.84 %**	**$ 879,028**

Reconciliation to Statement of Changes in Fiduciary Net Position, Administrative Expenses:

Total Administrative Expenses	$6,250,950
Investment General Consultant	355,000
Investment Custodian	309,521
Actuarial Experience Study	(7,600)
Depreciation Expense	(33,962)
OPEB Expense	97,797
OPEB Deferred Outflow	23,137
	$6,994,843

All Members*

Amount of Monthly Benefit	Retirement: Normal	Retirement: Early	Disability: Normal	Disability: Work-Related	Disability: Long-Term	Survivor	Total Recipients
$ 1 – 200	32	76	2	27	59	58	254
201 – 400	200	245	2	0	1	127	575
401 – 600	209	172	0	0	0	136	517
601 – 800	243	147	0	0	0	128	518
801 – 1,000	193	86	2	1	0	138	420
1,001 – 1,200	229	46	2	0	0	126	403
1,201 – 1,400	306	31	1	2	0	124	464
1,401 – 1,600	319	14	0	0	0	118	451
1,601 – 1,800	450	10	0	1	0	111	572
1,801 – 2,000	426	5	1	1	0	91	524
2,001 – 2,200	518	4	0	4	0	103	629
2,201 – 2,400	464	3	0	3	0	71	541
2,401 – 2,600	373	2	0	3	0	70	448
2,601 – 2,800	307	0	0	1	0	62	370
2,801 – 3,000	276	0	0	1	0	48	325
> 3,000	2,363	4	0	7	0	418	2,792
TOTALS	**6,908**	**845**	**10**	**51**	**60**	**1,929**	**9,803**

This chart includes eleven retirement system staff retirees.

MoDOT

Amount of Monthly Benefit	Retirement: Normal	Retirement: Early	Disability: Normal	Disability: Work-Related	Disability: Long-Term	Survivor	Total Recipients
$ 1 – 200	24	56	2	23	49	53	207
201 – 400	147	200	2	0	1	107	457
401 – 600	157	137	0	0	0	115	409
601 – 800	165	122	0	0	0	112	399
801 – 1,000	145	76	2	1	0	114	338
1,001 – 1,200	173	41	2	0	0	116	332
1,201 – 1,400	232	24	1	2	0	106	365
1,401 – 1,600	259	10	0	0	0	114	383
1,601 – 1,800	373	9	0	1	0	93	476
1,801 – 2,000	355	4	1	1	0	77	438
2,001 – 2,200	439	4	0	4	0	90	537
2,201 – 2,400	403	3	0	3	0	58	467
2,401 – 2,600	328	2	0	2	0	55	387
2,601 – 2,800	273	0	0	0	0	47	320
2,801 – 3,000	229	0	0	0	0	29	258
> 3,000	1,316	3	0	6	0	265	1,590
TOTALS	**5,018**	**691**	**10**	**43**	**50**	**1,551**	**7,363**

Uniformed Patrol

Amount of Monthly Benefit	Type of Benefit: Retirement Normal	Retirement Early	Disability Normal	Disability Work-Related	Disability Long-Term	Survivor	Total Recipients
$ 1 – 200	0	0	0	2	3	0	5
201 – 400	9	1	0	0	0	4	14
401 – 600	14	0	0	0	0	4	18
601 – 800	25	0	0	0	0	3	28
801 – 1,000	19	0	0	0	0	3	22
1,001 – 1,200	7	0	0	0	0	5	12
1,201 – 1,400	10	0	0	0	0	2	12
1,401 – 1,600	6	0	0	0	0	0	6
1,601 – 1,800	0	0	0	0	0	5	5
1,801 – 2,000	3	0	0	0	0	4	7
2,001 – 2,200	5	0	0	0	0	4	9
2,201 – 2,400	2	0	0	0	0	7	9
2,401 – 2,600	2	0	0	1	0	11	14
2,601 – 2,800	4	0	0	1	0	13	18
2,801 – 3,000	4	0	0	0	0	14	18
> 3,000	860	0	0	1	0	144	1,005
TOTALS	**970**	**1**	**0**	**5**	**3**	**223**	**1,202**

Civilian Patrol

Amount of Monthly Benefit	Type of Benefit: Retirement Normal	Retirement Early	Disability Normal	Disability Work-Related	Disability Long-Term	Survivor	Total Recipients
$ 1 – 200	8	20	0	2	7	5	42
201 – 400	44	44	0	0	0	16	104
401 – 600	38	35	0	0	0	17	90
601 – 800	53	24	0	0	0	13	90
801 – 1,000	29	10	0	0	0	21	60
1,001 – 1,200	49	5	0	0	0	5	59
1,201 – 1,400	64	7	0	0	0	16	87
1,401 – 1,600	54	4	0	0	0	4	62
1,601 – 1,800	76	1	0	0	0	13	90
1,801 – 2,000	68	1	0	0	0	10	79
2,001 – 2,200	74	0	0	0	0	9	83
2,201 – 2,400	58	0	0	0	0	6	64
2,401 – 2,600	43	0	0	0	0	4	47
2,601 – 2,800	30	0	0	0	0	2	32
2,801 – 3,000	42	0	0	1	0	5	48
> 3,000	180	0	0	0	0	9	189
TOTALS	**910**	**151**	**0**	**3**	**7**	**155**	**1,226**

MoDOT

By Years of Service

Retired In Fiscal Year		0 – 10	11 – 15	16 – 20	21 – 25	26 – 30	31 – 35	36 – 40	41+
2015	Average Benefit	$ 375	$ 740	$ 1,437	$ 1,910	$ 2,946	$ 3,740	$ 3,772	$ 0
2015	Average FAP	$ 2,660	$ 3,047	$ 3,409	$ 3,600	$ 4,324	$ 4,673	$ 4,286	$ 0
2015	Current Retirees	48	56	33	46	75	18	2	0
2016	Average Benefit	$ 369	$ 620	$ 1,064	$ 1,886	$ 3,027	$ 3,796	$ 5,049	$ 0
2016	Average FAP	$ 2,828	$ 2,710	$ 2,889	$ 3,754	$ 4,341	$ 4,709	$ 5,147	$ 0
2016	Current Retirees	30	23	24	45	77	13	2	0
2017	Average Benefit	$ 397	$ 664	$ 1,130	$ 1,775	$ 3,187	$ 4,335	$ 3,057	$ 0
2017	Average FAP	$ 2,589	$ 2,828	$ 3,087	$ 3,616	$ 4,613	$ 4,801	$ 3,717	$ 0
2017	Current Retirees	37	29	28	54	82	12	3	0
2018	Average Benefit	$ 360	$ 694	$ 1,186	$ 2,001	$ 3,152	$ 4,425	$ 3,581	$ 0
2018	Average FAP	$ 2,570	$ 3,009	$ 3,431	$ 3,971	$ 4,559	$ 4,957	$ 3,909	$ 0
2018	Current Retirees	31	33	36	46	69	10	1	0
2019	Average Benefit	$ 366	$ 749	$ 1,143	$ 1,954	$ 3,307	$ 3,711	$ 3,249	$ 0
2019	Average FAP	$ 2,595	$ 3,037	$ 3,444	$ 3,879	$ 4,727	$ 4,594	$ 4,015	$ 0
2019	Current Retirees	32	22	37	46	63	14	4	0
2020	Average Benefit	$ 368	$ 666	$ 1,216	$ 1,913	$ 3,350	$ 4,080	$ 3,694	$ 5,593
2020	Average FAP	$ 2,715	$ 3,118	$ 3,470	$ 3,799	$ 4,641	$ 4,890	$ 5,237	$ 5,540
2020	Current Retirees	28	26	33	58	88	7	3	2
2021	Average Benefit	$ 330	$ 821	$ 1,182	$ 1,922	$ 3,120	$ 3,574	$ 3,400	$ 3,273
2021	Average FAP	$ 2,881	$ 3,164	$ 3,453	$ 3,790	$ 4,342	$ 4,624	$ 4,677	$ 3,460
2021	Current Retirees	30	17	47	66	58	13	3	1
2022	Average Benefit	$ 327	$ 764	$ 1,144	$ 1,941	$ 3,145	$ 3,410	$ 2,772	$ 3,389
2022	Average FAP	$ 2,769	$ 3,420	$ 3,567	$ 3,771	$ 4,455	$ 4,622	$ 4,108	$ 3,993
2022	Current Retirees	45	37	47	72	72	16	3	2
2023	Average Benefit	$ 350	$ 686	$ 1,242	$ 2,103	$ 3,152	$ 4,128	$ 3,377	$ 0
2023	Average FAP	$ 2,928	$ 3,259	$ 3,835	$ 4,056	$ 4,768	$ 5,199	$ 4,353	$ 0
2023	Current Retirees	43	41	43	55	73	9	1	0
2024	Average Benefit	$ 316	$ 687	$ 1,206	$ 2,263	$ 3,244	$ 3,489	$ 3,249	$ 3,559
2024	Average FAP	$ 2,814	$ 3,334	$ 3,844	$ 4,198	$ 4,830	$ 5,417	$ 5,616	$ 5,393
2024	Current Retirees	38	42	41	56	68	18	2	1

FAP = Final Average Pay

Uniformed Patrol

By Years of Service

Retired In Fiscal Year		0 – 10	11 – 15	16 – 20	21 – 25	26 – 30	31 – 35	36 – 40	41+
2015	Average Benefit	$ 972	$ 1,062	$ 0	$ 4,887	$ 6,577	$ 8,030	$ 0	$ 0
2015	Average FAP	$ 3,119	$ 4,458	$ 0	$ 6,170	$ 6,680	$ 6,951	$ 0	$ 0
2015	Current Retirees	1	1	0	1	19	10	0	0
2016	Average Benefit	$ 330	$ 1,374	$ 0	$ 5,070	$ 5,877	$ 7,741	$ 0	$ 0
2016	Average FAP	$ 2,599	$ 3,804	$ 0	$ 6,405	$ 6,559	$ 7,039	$ 0	$ 0
2016	Current Retirees	1	1	0	4	12	4	0	0
2017	Average Benefit	$ 681	$ 1,316	$ 3,655	$ 5,024	$ 6,055	$ 9,553	$ 8,803	$ 0
2017	Average FAP	$ 2,791	$ 3,804	$ 5,548	$ 5,621	$ 6,786	$ 7,841	$ 7,077	$ 0
2017	Current Retirees	2	2	1	1	29	1	1	0
2018	Average Benefit	$ 474	$ 1,267	$ 1,827	$ 4,574	$ 5,879	$ 0	$ 0	$ 0
2018	Average FAP	$ 2,566	$ 3,430	$ 3,943	$ 7,001	$ 6,771	$ 0	$ 0	$ 0
2018	Current Retirees	2	3	1	4	25	0	0	0
2019	Average Benefit	$ 422	$ 1,274	$ 2,196	$ 3,957	$ 5,620	$ 7,097	$ 0	$ 0
2019	Average FAP	$ 2,748	$ 3,589	$ 4,417	$ 6,051	$ 6,930	$ 7,472	$ 0	$ 0
2019	Current Retirees	3	1	2	4	33	6	0	0
2020	Average Benefit	$ 632	$ 889	$ 2,625	$ 3,984	$ 5,462	$ 6,531	$ 0	$ 0
2020	Average FAP	$ 3,004	$ 3,047	$ 5,530	$ 6,246	$ 6,929	$ 6,915	$ 0	$ 0
2020	Current Retirees	5	1	3	5	25	4	0	0
2021	Average Benefit	$ 601	$ 0	$ 0	$ 3,560	$ 5,305	$ 6,288	$ 0	$ 0
2021	Average FAP	$ 3,261	$ 0	$ 0	$ 6,136	$ 6,984	$ 7,164	$ 0	$ 0
2021	Current Retirees	8	0	0	5	30	6	0	0
2022	Average Benefit	$ 665	$ 977	$ 2,609	$ 4,096	$ 4,972	$ 5,837	$ 0	$ 0
2022	Average FAP	$ 3,277	$ 3,602	$ 5,407	$ 6,684	$ 6,918	$ 6,980	$ 0	$ 0
2022	Current Retirees	4	3	1	5	43	3	0	0
2023	Average Benefit	$ 654	$ 1,176	$ 2,406	$ 3,717	$ 4,871	$ 6,549	$ 0	$ 0
2023	Average FAP	$ 3,142	$ 4,043	$ 5,761	$ 6,302	$ 7,003	$ 7,819	$ 0	$ 0
2023	Current Retirees	8	2	2	5	52	6	0	0
2024	Average Benefit	$ 546	$ 1,127	$ 0	$ 3,836	$ 4,842	$ 6,032	$ 0	$ 0
2024	Average FAP	$ 3,106	$ 4,001	$ 0	$ 6,433	$ 7,511	$ 8,197	$ 0	$ 0
2024	Current Retirees	10	2	0	3	42	4	0	0

FAP = Final Average Pay

Civilian Patrol

By Years of Service

Retired In Fiscal Year		0 – 10	11 – 15	16 – 20	21 – 25	26 – 30	31 – 35	36 – 40	41+
2015	Average Benefit	$ 355	$ 718	$ 1,444	$ 1,643	$ 2,458	$ 3,983	$ 0	$ 0
2015	Average FAP	$ 2,335	$ 2,586	$ 3,273	$ 3,453	$ 3,831	$ 4,911	$ 0	$ 0
2015	Current Retirees	11	11	5	13	12	6	0	0
2016	Average Benefit	$ 198	$ 633	$ 1,063	$ 1,953	$ 2,626	$ 5,113	$ 0	$ 0
2016	Average FAP	$ 2,457	$ 2,521	$ 2,989	$ 3,585	$ 3,820	$ 5,718	$ 0	$ 0
2016	Current Retirees	6	7	5	7	15	1	0	0
2017	Average Benefit	$ 355	$ 745	$ 1,409	$ 1,615	$ 2,733	$ 3,612	$ 3,607	$ 0
2017	Average FAP	$ 2,614	$ 2,712	$ 3,460	$ 3,301	$ 4,270	$ 4,425	$ 3,919	$ 0
2017	Current Retirees	7	5	7	13	18	5	1	0
2018	Average Benefit	$ 207	$ 765	$ 1,213	$ 2,049	$ 2,649	$ 2,613	$ 6,268	$ 0
2018	Average FAP	$ 1,955	$ 3,030	$ 3,452	$ 4,002	$ 3,996	$ 3,379	$ 7,510	$ 0
2018	Current Retirees	3	6	6	7	11	4	1	0
2019	Average Benefit	$ 484	$ 838	$ 959	$ 1,643	$ 2,452	$ 3,104	$ 0	$ 0
2019	Average FAP	$ 3,035	$ 3,094	$ 3,111	$ 3,228	$ 3,507	$ 3,912	$ 0	$ 0
2019	Current Retirees	4	6	6	6	6	5	0	0
2020	Average Benefit	$ 384	$ 557	$ 1,180	$ 1,786	$ 2,832	$ 2,647	$ 0	$ 4,329
2020	Average FAP	$ 2,804	$ 2,638	$ 3,176	$ 3,711	$ 4,141	$ 3,125	$ 0	$ 4,079
2020	Current Retirees	5	4	7	9	15	2	0	1
2021	Average Benefit	$ 259	$ 619	$ 1,111	$ 1,809	$ 3,373	$ 2,797	$ 0	$ 0
2021	Average FAP	$ 2,326	$ 2,991	$ 3,626	$ 3,575	$ 4,754	$ 3,188	$ 0	$ 0
2021	Current Retirees	9	10	10	11	9	1	0	0
2022	Average Benefit	$ 387	$ 631	$ 954	$ 1,829	$ 3,069	$ 4,093	$ 2,788	$ 0
2022	Average FAP	$ 2,980	$ 2,703	$ 3,131	$ 3,573	$ 4,430	$ 5,575	$ 3,411	$ 0
2022	Current Retirees	11	9	10	18	15	6	2	0
2023	Average Benefit	$ 404	$ 633	$ 997	$ 1,888	$ 3,594	$ 1,973	$ 0	$ 0
2023	Average FAP	$ 3,170	$ 2,908	$ 3,218	$ 3,834	$ 5,385	$ 2,846	$ 0	$ 0
2023	Current Retirees	7	12	7	9	12	1	0	0
2024	Average Benefit	$ 285	$ 752	$ 1,685	$ 1,993	$ 3,320	$ 3,947	$ 0	$ 0
2024	Average FAP	$ 2,517	$ 3,438	$ 4,110	$ 4,075	$ 4,969	$ 4,851	$ 0	$ 0
2024	Current Retirees	16	3	5	8	14	2	0	0

FAP = Final Average Pay

MPERS

By Years of Service

Retired In Fiscal Year		0 – 10	11 – 15	16 – 20	21 – 25	26 – 30	31 – 35	36 – 40	41+
2015	Average Benefit	$ 0	$ 0	$ 0	$ 0	$ 0	$ 3,478	$ 0	$ 0
2015	Average FAP	$ 0	$ 0	$ 0	$ 0	$ 0	$ 4,764	$ 0	$ 0
2015	Current Retirees	0	0	0	0	0	1	0	0
2016	Average Benefit	$ 0	$ 0	$ 0	$ 4,350	$ 0	$ 0	$ 0	$ 0
2016	Average FAP	$ 0	$ 0	$ 0	$ 9,414	$ 0	$ 0	$ 0	$ 0
2016	Current Retirees	0	0	0	1	0	0	0	0
2020	Average Benefit	$ 0	$ 0	$ 0	$ 0	$ 0	$ 10,769	$ 0	$ 0
2020	Average FAP	$ 0	$ 0	$ 0	$ 0	$ 0	$ 12,079	$ 0	$ 0
2020	Current Retirees	0	0	0	0	0	1	0	0
2023	Average Benefit	$ 0	$ 0	$ 0	$ 0	$ 0	$ 4,087	$ 0	$ 0
2023	Average FAP	$ 0	$ 0	$ 0	$ 0	$ 0	$ 4,644	$ 0	$ 0
2023	Current Retirees	0	0	0	0	0	1	0	0
2024	Average Benefit	$ 0	$ 613	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
2024	Average FAP	$ 0	$ 4,022	$ 0	$ 0	$ 0	$ 0	$ 0	$ 0
2024	Current Retirees	0	1	0	0	0	0	0	0

Note: There were no retirements during the years not shown above.

FAP = Final Average Pay

	MoDOT		Patrol		MPERS		Total	
	Employees	%	Employees	%	Employees	%	Employees	%
2015	4,993	67.72	2,364	32.06	16	0.22	7,373	100.00
2016	5,059	67.70	2,398	32.09	16	0.21	7,473	100.00
2017	5,056	67.86	2,379	31.93	16	0.21	7,451	100.00
2018	5,065	68.31	2,334	31.48	16	0.22	7,415	100.00
2019	5,081	68.51	2,318	31.26	17	0.23	7,416	100.00
2020	5,031	68.59	2,287	31.18	17	0.23	7,335	100.00
2021	4,913	68.29	2,263	31.46	18	0.25	7,194	100.00
2022	4,629	67.52	2,209	32.22	18	0.26	6,856	100.00
2023	4,435	66.97	2,168	32.74	19	0.29	6,622	100.00
2024	4,710	68.38	2,157	31.32	21	0.30	6,888	100.00

Data for this chart is as of June 30, 2024.

By Age

Closed Plan

Age	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
<21	0	0	0	0	0
21 – 25	0	0	0	0	0
26 – 30	0	0	0	0	0
31 – 35	0	0	0	0	0
36 – 40	0	0	0	0	0
41 – 45	49	34	8	6	1
46 – 50	301	189	33	79	0
51 – 55	430	255	42	130	3
56 – 60	211	151	32	28	0
61 – 65	95	78	17	0	0
66+	20	15	5	0	0
Total	**1,106**	**722**	**137**	**243**	**4**
Average Age		**53**	**54**	**51**	**51**

Year 2000 Plan

Age	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
<21	0	0	0	0	0
21 – 25	0	0	0	0	0
26 – 30	0	0	0	0	0
31 – 35	22	13	4	5	0
36 – 40	289	154	39	94	2
41 – 45	488	278	79	129	2
46 – 50	383	246	50	86	1
51 – 55	313	224	59	26	4
56 – 60	222	161	51	8	2
61 – 65	112	100	12	0	0
66+	22	20	2	0	0
Total	**1,851**	**1,196**	**296**	**348**	**11**
Average Age		**49**	**48**	**43**	**48**

Year 2000 Plan – 2011 Tier

Age	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
<21	69	67	2	0	0
21 – 25	445	295	62	87	1
26 – 30	722	453	114	154	1
31 – 35	729	443	114	171	1
36 – 40	507	371	62	73	1
41 – 45	379	302	56	21	0
46 – 50	274	220	47	6	1
51 – 55	332	263	64	4	1
56 – 60	283	230	52	1	0
61 – 65	165	130	35	0	0
66+	26	18	8	0	0
Total	**3,931**	**2,792**	**616**	**517**	**6**
Average Age		**39**	**39**	**31**	**36**

By Years of Service

Closed Plan

Years of Service	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
<01	1	1	0	0	0
01 – 05	4	2	1	1	0
06 – 10	3	2	1	0	0
11 – 15	21	13	7	1	0
16 – 20	15	12	2	1	0
21 – 25	307	232	37	37	1
26 – 30	547	308	65	172	2
31 – 35	162	113	18	30	1
36 – 40	34	29	4	1	0
41 – 45	8	8	0	0	0
46+	4	2	2	0	0
Total	**1,106**	**722**	**137**	**243**	**4**
Average Service		**27**	**27**	**28**	**28**

Year 2000 Plan

Years of Service	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
<01	28	22	4	1	1
01 – 05	35	32	2	1	0
06 – 10	66	46	20	0	0
11 – 15	366	219	69	75	3
16 – 20	869	568	130	166	5
21 – 25	482	307	71	103	1
26 – 30	5	2	0	2	1
31 – 35	0	0	0	0	0
36 – 40	0	0	0	0	0
41 – 45	0	0	0	0	0
46+	0	0	0	0	0
Total	**1,851**	**1,196**	**296**	**348**	**11**
Average Service		**17**	**17**	**18**	**16**

Year 2000 Plan – 2011 Tier

Service	Total	MoDOT	Patrol	Patrol	MPERS
<01	833	691	90	51	1
01 – 05	1,661	1,172	266	220	3
06 – 10	1,173	810	199	163	1
11 – 15	263	118	61	83	1
16 – 20	0	0	0	0	0
21 – 25	1	1	0	0	0
26 – 30	0	0	0	0	0
31 – 35	0	0	0	0	0
36 – 40	0	0	0	0	0
41 – 45	0	0	0	0	0
46+	0	0	0	0	0
Total	**3,931**	**2,792**	**616**	**517**	**6**
Average Service		**4**	**5**	**6**	**4**

By Age

Closed Plan

Age	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
<21	0	0	0	0	0
21 – 25	0	0	0	0	0
26 – 30	0	0	0	0	0
31 – 35	0	0	0	0	0
36 – 40	0	0	0	0	0
41 – 45	32	28	4	0	0
46 – 50	165	136	19	9	1
51 – 55	304	225	28	51	0
56 – 60	194	177	16	1	0
61 – 65	59	51	8	0	0
66+	2	2	0	0	0
Total	**756**	**619**	**75**	**61**	**1**
Average Age		**53**	**53**	**52**	**47**

Year 2000 Plan

Age	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
<21	0	0	0	0	0
21 – 25	0	0	0	0	0
26 – 30	0	0	0	0	0
31 – 35	17	14	2	1	0
36 – 40	171	117	26	28	0
41 – 45	301	234	50	17	0
46 – 50	247	211	20	16	0
51 – 55	175	146	24	5	0
56 – 60	95	82	11	2	0
61 – 65	22	20	2	0	0
66+	0	0	0	0	0
Total	**1,028**	**824**	**135**	**69**	**0**
Average Age		**47**	**45**	**43**	**0**

Year 2000 Plan – 2011 Tier

Age	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
<21	0	0	0	0	0
21 – 25	3	3	0	0	0
26 – 30	56	48	5	3	0
31 – 35	130	86	20	23	1
36 – 40	88	62	17	9	0
41 – 45	35	31	1	3	0
46 – 50	41	33	7	1	0
51 – 55	31	19	9	3	0
56 – 60	23	20	3	0	0
61 – 65	18	15	3	0	0
66+	2	2	0	0	0
Total	**427**	**319**	**65**	**42**	**1**
Average Age		**40**	**41**	**36**	**35**

By Years of Service

Closed Plan

Service	Total	MoDOT	Patrol	Patrol	MPERS
<01	0	0	0	0	0
01 – 05	100	75	13	12	0
06 – 10	312	251	29	31	1
11 – 15	190	159	21	10	0
16 – 20	105	94	8	3	0
21 – 25	45	36	4	5	0
26 – 30	3	3	0	0	0
31 – 35	0	0	0	0	0
36 – 40	1	1	0	0	0
41 – 45	0	0	0	0	0
46+	0	0	0	0	0
Total	**756**	**619**	**75**	**61**	**1**
Average Service		**11**	**10**	**9**	**8**

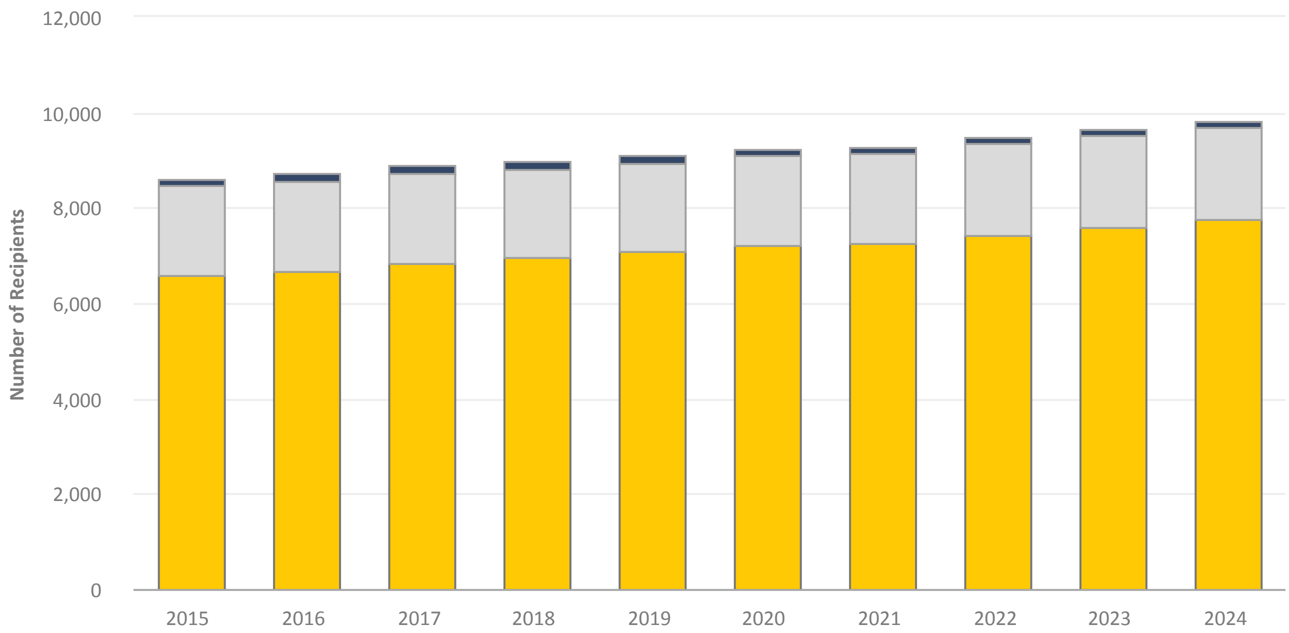
Year 2000 Plan

Years of Service	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
<01	0	0	0	0	0
01 – 05	107	90	14	3	0
06 – 10	535	433	64	38	0
11 – 15	275	210	45	20	0
16 – 20	93	75	11	7	0
21 – 25	18	16	1	1	0
26 – 30	0	0	0	0	0
31 – 35	0	0	0	0	0
36 – 40	0	0	0	0	0
41 – 45	0	0	0	0	0
46+	0	0	0	0	0
Total	**1,028**	**824**	**135**	**69**	**0**
Average Service		**10**	**10**	**11**	**0**

Year 2000 Plan – 2011 Tier

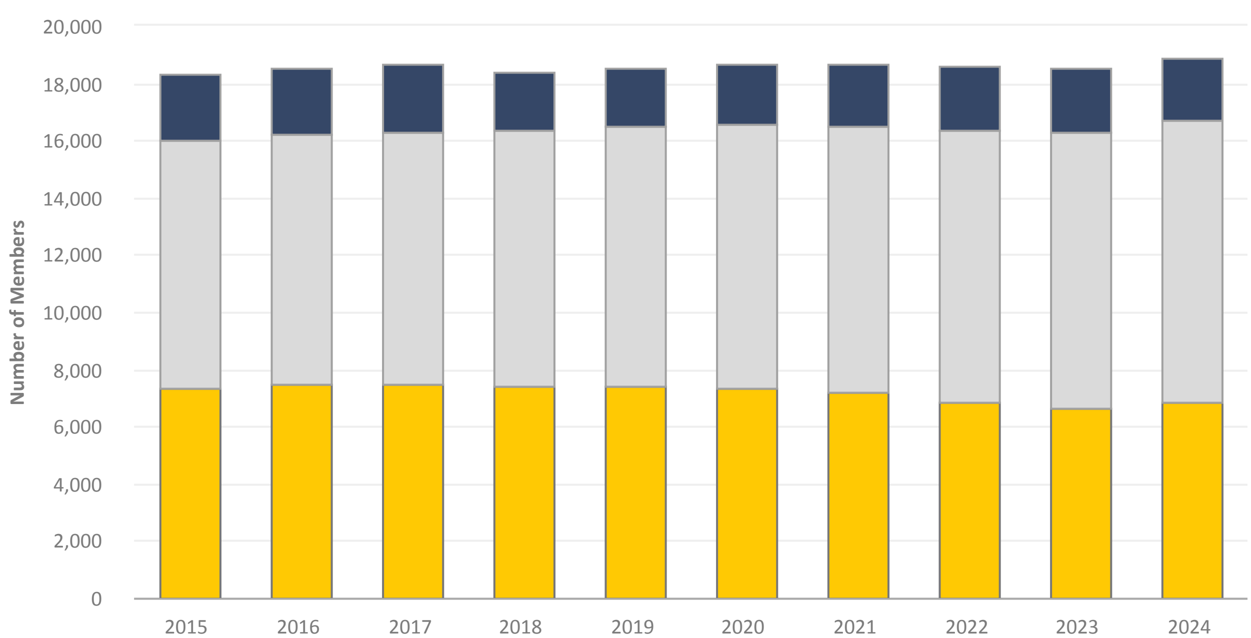
Years of Service	Total	MoDOT	Civilian Patrol	Uniformed Patrol	MPERS
<01	0	0	0	0	0
01 – 05	166	128	24	14	0
06 – 10	251	187	37	26	1
11 – 15	10	4	4	2	0
16 – 20	0	0	0	0	0
21 – 25	0	0	0	0	0
26 – 30	0	0	0	0	0
31 – 35	0	0	0	0	0
36 – 40	0	0	0	0	0
41 – 45	0	0	0	0	0
46+	0	0	0	0	0
Total	**427**	**319**	**65**	**42**	**1**
Average Service		**6**	**6**	**7**	**7**

Benefit Recipients



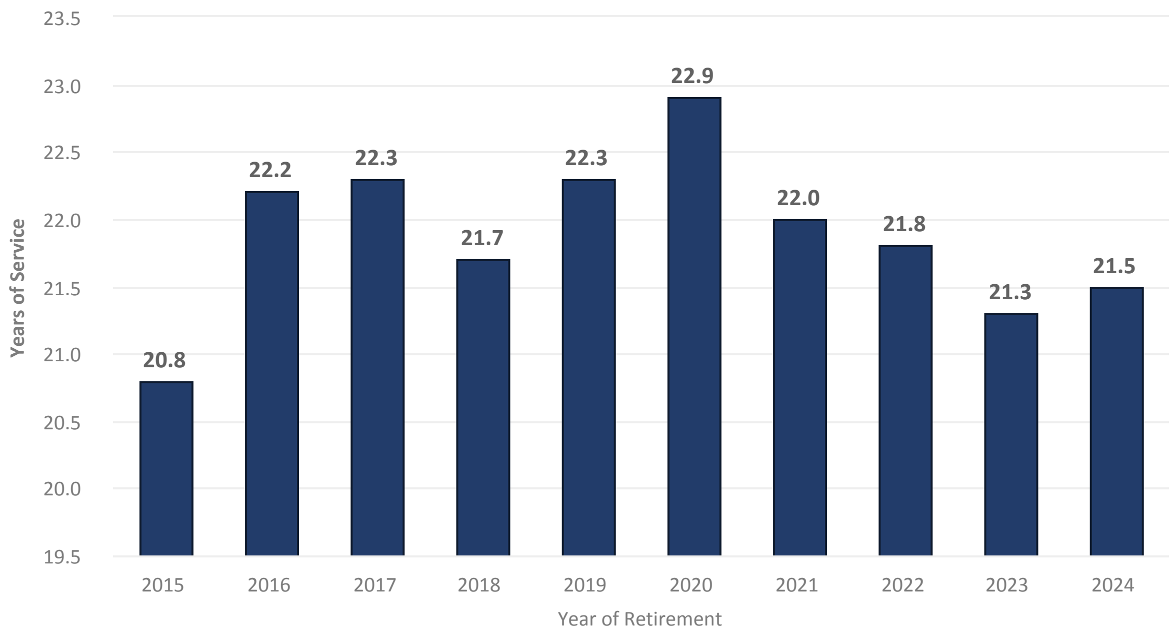
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Disabilities	164	155	155	148	143	139	128	124	127	121
Survivors	1,874	1,882	1,875	1,863	1,866	1,879	1,909	1,918	1,926	1,929
Retirees	6,583	6,690	6,846	6,956	7,077	7,208	7,254	7,444	7,597	7,753

Membership Distribution

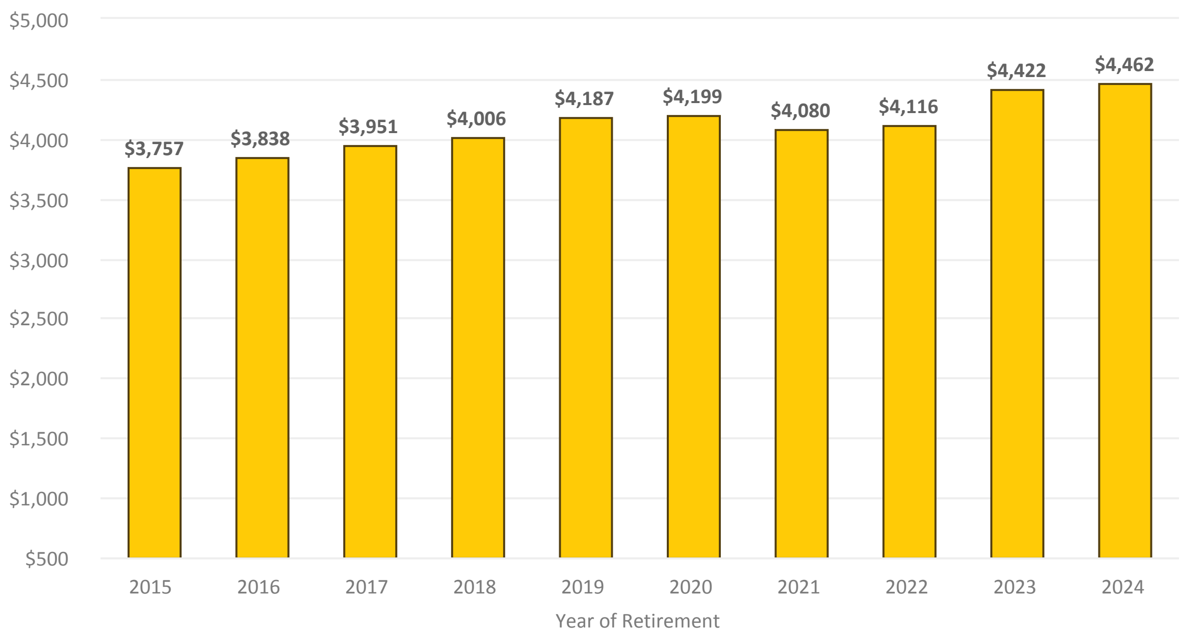


	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Term. Vested Members	2,300	2,329	2,319	1,985	2,051	2,099	2,153	2,256	2,244	2,211
Benefit Recipients	8,621	8,727	8,876	8,967	9,086	9,226	9,291	9,486	9,650	9,803
Active Members	7,373	7,473	7,451	7,415	7,416	7,335	7,194	6,856	6,622	6,888

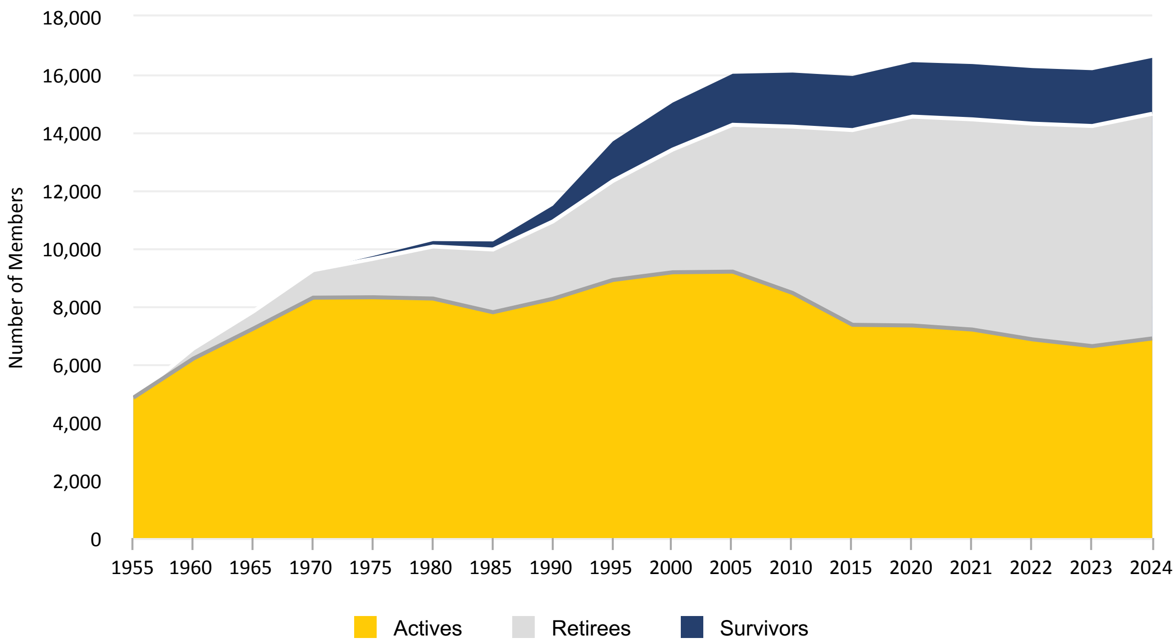
Average Years of Service for New Retirees



Final Average Pay for New Retirees



MPERS Membership Over the Years



This map represents the demographic distribution of retirees by state and country as of June 30, 2024.